STOELTING
FOODSERVICE EQUIPMENT

Quick Reference Guide Book

Freezer Specifications

Part Number: 513512
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Notice

This manual is to be used for reference of technical specifications only. This document is not a replacement or substitution for Owner's or Service Manuals. It does not contain important user, service and hazard information mandatory for proper and safe operation and service procedures. Never attempt to operate or service equipment without first thoroughly reading and understanding the appropriate Owner's and Service Manuals. If you have any questions regarding operation or service procedures, or need to obtain the correct manuals, contact Stoelting Customer Service at 800-558-5807 or visit us on the web at www.StoeltingFoodService.com.

Continuous research leads to ongoing product improvements; therefore, the specifications in this book are subject to change without notice.

Stoelting Model Numbers

Stoelting model numbers often end with a letter, usually G, H, or I. This letter represents the generation of the model. Most new models have the letter I designation. Some of the pressure fed models also have an R designation, which refers to a remote pump. Details on the model numbering code are located on the Model Identification System page in the Reference Data section.

Stoelting

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Troubleshooting Start Point

Current Model Specifications

Slush & Cocktail

Pressure Fed & Pumps

Gravity Fed

Custard

Vertical Batch

Controls

Reference Data

Parts & Materials

Discontinued Model Specifications

Warranty

Start Here

When troubleshooting any freezer, review the following table first. Clean, sanitize and add fresh mix before making any adjustments or opening any panels.

I. Mix			
Liquid Mix	How long has the mix been in the freezer? Has the "Use By" date passed?	The mix must be fresh for the freezer to run properly.	Drain, clean and sanitize. Add new, fresh mix.
Powder	How was the mix made? How was the mix stored? Was it stirred before using?	The mix must be made correctly for the freezer to run properly. The mix must be agitated before it is put into the freezer.	Drain, clean and sanitize. Make a new batch of mix, following mix manufacturers instructions.
Frozen Mix	How was the mix thawed? How was the mix checked for ice crystals?	The mix must be completely thawed, without ice crystals, before it is put into the freezer.	Drain, clean and sanitize. Add completely thawed, fresh mix.
Type of Mix	Soft serve, yogurt, custard? % butterfat?	The type of mix and its ingredients will influence the output.	Check overrun and temperature. Control settings may need to be modified depending on mix.

II. Product Use, Overrun, Appearance			
Serving Size	How many ounces per cone/cup? How many cones/cups in a row?	Freezers come in a wide range of capacities.	Serving size and frequency should match closely with the freezer's capabilities.
Volume	How many gallons per day? How many gallons per side?	Freezers come in a wide range of capacities.	The output should match closely with the freezer's capabilities.
Rerun	Is product ever reused? If so, how much? How often is fresh mix used? How often is foam skimmed off?	The mix must be fresh for the freezer to run properly.	Drain, clean and sanitize. Add new, fresh mix.
Overrun	What is the product overrun? What is the freezer overrun setting?	Low overrun results in cold, icy product. High overrun results in product that is too fluffy and less satisfying.	The overrun setting must be correct for the type of mix being used.
Appearance	Does the product stand up in cone/cup? Does the product have ice crystals? What is product temperature? Is the product discolored?	The mix must be fresh for the freezer to run properly. Using old mix results in low overrun, product breakdown and product separation.	Drain, clean and sanitize. Add new, fresh mix.

Start Here

III. Cleaning and Maintenance			
Cleaning	When was the freezer last cleaned? How often is the freezer cleaned? Was the freezer reassembled and lubricated properly after cleaning? Was the freezer sanitized?	The freezer must be properly cleaned, sanitized and inspected before being reassembled.	Drain, clean and sanitize. Add new, fresh mix.
Maintenance	When was the last time they: -Changed O-rings? -Changed Rear Seal? -Advanced hoses on cab units? -Cleaned Condensor? -Changed Condensor Filter?	Inspection of all parts must be done after every cleaning. Replace o-rings every 4 months. Replace rear seal annually. The pump hose on cab units must be advanced every 800 gallons served. Condenser filter must be cleaned monthly and replaced as necessary.	Drain, clean and sanitize. Add new, fresh mix.

IV. Machine			
Air-Cooled	What is the ambient temperature of the room where the freezer is installed? How much space is between the freezer and other pieces of equipment or walls?	The freezer relies on an ambient temperature and air flow to run properly.	Make sure ambient temperature and air space are within the freezer's specifications. Move freezer if necessary.
Control Settings	Were settings changed? Are they set to factory specs?	Factory settings are balanced to operate the freezer in a wide range of environments using a wide range of products.	Check the control setting specifications with the actual settings. Revert the settings as necessary.
Refrigeration System	Refer to service manual for troubleshooting.		
Problem Component	Refer to service manual for troubleshooting.		

100C / 100F / 2217G

Manufactured from 1959 to Present

Torque
Control

	Model 100C		Model 100F		Model 2217G	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**	**Freezer**	**with crate**
width	15" (38,1 cm)	28" (71,0 cm)	15" (38,1 cm)	17" (43,2 cm)	15" (38,1 cm)	17" (43,2 cm)
height	32" (81,2 cm)	40-1/4" (102,2 cm)	58" (147,3 cm)	66" (167,5 cm)	58" (147,3 cm)	66" (167,5 cm)
depth	29-1/2" (74,9 cm)	35-1/2" (90,2 cm)	15" (38,1 cm)	21" (53,2 cm)	15" (38,1 cm)	21" (53,2 cm)
Weight	142 lbs (64,4 kg)	200 lbs (90,7 kg)	140 lbs (63,5 kg)	165 lbs (74,7 kg)	160 lbs (72,5 kg)	185 lbs (83,9 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**		**1 Phase, 115 VAC, 60Hz**		**1 Phase, 115 VAC, 60Hz**	
running amps	approximately 7A		approximately 7A		approximately 9A	
connection type	NEMA5-15P included		NEMA5-15P included		NEMA5-15P included	
Compressor	2,040 Btu/hr		2,040 Btu/hr		2,250 Btu/hr	
Drive Motor	1/12 hp		1/12 hp		1/12 hp	
Cooling	Air cooled units require 6" (15,2 cm) air space an sides and back		Air cooled units require 6" (15,2 cm) air space at front and back.		Air cooled units require 6" (15,2 cm) air space at front and back.	
Hopper Volume	10 gallon (37,85 liters)		10 gallon (37,85 liters)		10 gallon (37,85 liters)	
Production Capacity	5 GPH (18,93 liters)		5 GPH (18,93 liters)		7.5 GPH (28,39 liters)	

R-12 Suction Pressures

Air Entering Condenser	Low Side Suction Pressure
70°F	6.5 - 7 lbs
75°F	7.5 - 8 lbs
80°F	9.5 - 10 lbs
85°F	10 - 10.5 lbs
90°F	10.5 - 11 lbs
95°F	11.5 - 12.5 lbs

Current Model Specifications

	100C	100F	2217
Refrigerant	R-12	R-12	R-502
Charge	18 oz	18 oz	18 oz
Suction Pressure (AXV)	See Chart	See Chart	27-29 psig
Discharge Pressure	110 psig	110 psig	215 psig

	100C	100F	2217G
Refrigerant	R-22	R-22	R-404A
Charge	18 oz	18 oz	20 oz
Suction Pressure (AXV)	33-35 psig	33-35 psig	47-49 psig
Discharge Pressure	145-150 psig	145-150 psig	235 psig

	100C	100F	2217
Torque Control Spring Length	3-1/8"	3-1/8"	3-5/8"
Torque Control Timer Delay	71-81 sec	71-81 sec	71-81 sec
Brix	11-13%	11-13%	11-13%

E157 / LE157 / E257 / LE257 / F257

Manufactured from 1992 to Present (LE & F from 1997)

Torque
Control

	Model E157 (LE157)		Model E257 (LE257)		Model F257	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**	**Freezer**	**with crate**
width	15" (38,1 cm)	28" (71,0 cm)	15" (38,1 cm)	17" (43,2 cm)	15" (38,1 cm)	17" (43,2 cm)
height	32" (81,2 cm)	40-1/4" (102,2 cm)	58" (147,3 cm)	66" (167,5 cm)	58" (147,3 cm)	66" (167,5 cm)
depth	29-1/2" (74,9 cm)	35-1/2" (90,2 cm)	15" (38,1 cm)	21" (53,2 cm)	15" (38,1 cm)	21" (53,2 cm)
Weight	142 lbs (64,4 kg)	200 lbs (90,7 kg)	140 lbs (63,5 kg)	165 lbs (74,7 kg)	160 lbs (72,5 kg)	185 lbs (83,9 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**		**1 Phase, 115 VAC, 60Hz**		**1 Phase, 115 VAC, 60Hz**	
running amps	approximately 7A		approximately 7A		approximately 9A	
connection type	NEMA5-15P included		NEMA5-15P included		NEMA5-15P included	
Compressor	2,040 Btu/hr		2,040 Btu/hr		2,250 Btu/hr	
Drive Motor	1/12 hp		1/12 hp		1/12 hp	
Cooling	Air cooled units require 6" (15,2 cm) air space an sides and back		Air cooled units require 6" (15,2 cm) air space at front and back.		Air cooled units require 6" (15,2 cm) air space at front and back.	
Hopper Volume	10 gallon (37,85 liters)		10 gallon (37,85 liters)		10 gallon (37,85 liters)	
Production Capacity	5 GPH (18,93 liters)		5 GPH (18,93 liters)		7.5 GPH (28,39 liters)	

	E157	E257	F257
Refrigerant	R-12	R-12	R-502
Charge	18 oz	18 oz	18 oz
Suction Pressure (AXV)	See Chart	See Chart	27-29 psig
Discharge Pressure	110 psig	110 psig	215 psig

R-12 Suction Pressures

Air Entering Condenser	Low Side Suction Pressure
70°F	6.5 - 7 lbs
75°F	7.5 - 8 lbs
80°F	9.5 - 10 lbs
85°F	10 - 10.5 lbs
90°F	10.5 - 11 lbs
95°F	11.5 - 12.5 lbs

	E157	E257	F257
Refrigerant	R-22	R-22	R-404A
Charge	18 oz	18 oz	20 oz
Suction Pressure (AXV)	33-35 psig	33-35 psig	47-49 psig
Discharge Pressure	145-150 psig	145-150 psig	235 psig

	E157	E257	F257
Torque Control Spring Length	3-1/8"	3-1/8"	3-5/8"
Torque Control Timer Delay	71-81 sec	71-81 sec	71-81 sec
Brix	11-13%	11-13%	11-13%

SC118

Manufactured from 1997 to Present

Torque
Control

	Model SC118 - Stowaway	
Dimensions	**Freezer**	**with crate**
width	12" (30,5 cm)	19-1/2" (49,5 cm)
height	28" (71,0 cm)	40" (101,5 cm)
depth	26-1/4" (66,7 cm)	33" (83,7 cm)
Weight	160 lbs (72,5 kg)	205 lbs (92,1 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**	
running amps	approximately 12A	
connection type	NEMA5-15P power cord provided	
Compressor	2,250 Btu/hr	
Air Flow	Air cooled units require 3" (7,6 cm) air space at front and back	
Hopper Volume	2.5 gallon (9,54 liters)	
Freezing Cylinder Volume	1.25 gallon (5 quart), 4,73 liters	

	SC118
Refrigerant	R-404A
Charge	14 oz
Superheat out of Evaporator	10°F
Suction Pressure	44-46 psig
Discharge Pressure	300 psig
Hopper Evaporator Back Pressure	65 psig

	SC118
Torque Control Spring Length	1/2" from Full Firm (Bottom)
Torque Control Timer Delay	15 sec
Night Mode Pressure Switch	85 lbs Start 49 lbs Stop

M127 / M167 / 117

Manufactured from 1994 to Present

	Mirage 2 - M127-37G		Mirage 3 - M167-37G		117-374	117-378
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**	**Freezer**	**Freezer**
width	16" (40,6 cm)	18" (45,7 cm)	24" (60,1 cm)	25" (63,5 cm)	13" (33,0 cm)	16" (40,6 cm)
height	19" (48,2 cm)	20-1/2" (52,1 cm)	19" (48,2 cm)	20-1/2" (52,1 cm)	19" (48,2 cm)	19" (48,2 cm)
depth	34-1/2" (87,5 cm)	36" (91,4 cm)	34-1/2" (87,5 cm)	36" (91,4 cm)	29" (73,7 cm)	29" (73,7 cm)
Weight	101 lbs (45,7 kg)	112 lbs (50,7 kg)	143 lbs (64,9 kg)	155 lbs (70,2 kg)	86 lbs (39,0 kg)	97 lbs (43,1 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**		**1 Phase, 115 VAC, 60Hz**		**1 Phase, 115 VAC, 60Hz**	
running amps	approximately 9.1A		approximately 9.1A			
connection type	NEMA5-15P included		NEMA5-15P included		NEMA5-15P included	
Drive Motor	1/2 hp		5/8 hp		1/2 hp	
Cooling	Air cooled		Air cooled		Air cooled	
Clear Bowl Volume	3 gallon (12 quart), 11,36 liters		3 gallon (12 quart), 11,36 liters		3 gallon (12 quart), 11,36 liters	
Flavor Bottle	N/A		N/A		Four - 24 oz (0,71 liters)	Eight - 24 oz (0,71 liters)
Blender	N/A		N/A		Automatic	Manual Side Spinner

	M127-37G	M167-37G	117-374	117-378
Refrigerant	R-404A	R-404A	R-22	R-22
Charge	8 oz	12-17 oz		
Suction Pressure	20-32 psig	18-29-31 psig	34 psig	34 psig

SO218 / SO318

Manufactured from 1999 to Present

Torque
Control

	Model SO218		Model SO318	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	17-3/4" (45,1 cm)	25" (63,5 cm)	17-3/4" (45,1 cm)	25" (63,5 cm)
height	61-1/4" (155,5 cm)	66" (167,5 cm)	61-1/4" (155,5 cm)	66" (167,5 cm)
depth	26-1/4" (66,7 cm)	51" (129,5 cm)	26-1/4" (66,7 cm)	51" (129,5 cm)
Weight	315 lbs (142,9 kg)	410 lbs (185,1 kg)	315 lbs (142,9 kg)	410 lbs (185,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**			
running amps	approximately 12A			
connection type	NEMA6-20P power cord provided			
Compressor	14,000 Btu/hr			
Drive Motor	1/2 hp			
Air Flow	Air cooled units require 3" (7,6 cm) air space at back and front		Air cooled units require 3" (7,6 cm) air space at back and front	
Plumbing Fittings	N/A		Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	7 gallon (26,50 liters)			
Freezing Cylinder Volume	2 gallon (8 quart), 7,57 liters			
Production Capacity	26 GPH (98,42 liters) per Freezing Cylinder			

	SO218/SO318
Refrigerant	R-404A
Charge	(W/C) 28 oz (A/C) 34 oz
Superheat out of Evaporator	10-16°F
Suction Pressure	33-35 psig
Discharge Pressure	240-260 psig
EPR Valve	69-71 psig

	SO218/SO318
Torque Control Spring Length	3-7/8"
Torque Control Timer Delay	10 sec Delay on Make 10 sec Delay on Break
Fill Timer Settings	448 sec (64, 128, 256 in ON position)

SO328

Manufactured from 2001 to Present

Torque
Control

	Model SO328 Water Cooled		Model SO328 Air Cooled	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	26" (66,0 cm)	32-1/2" (82,5 cm)	26" (66,0 cm)	32-1/2" (82,5 cm)
height	60-1/2" (153,6 cm)	64" (162,5 cm)	60-1/2" (153,6 cm)	64" (162,5 cm)
depth	33-1/2" (85,0 cm)	40-1/2" (102,9 cm)	33-1/2" (85,0 cm)	40-1/2" (102,9 cm)
Weight	586 lbs (265,8 kg)	706 lbs (320,1 kg)	586 lbs (265,8 kg)	706 lbs (320,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**			
running amps	approximately 12A			
connection type	NEMA6-20P power cord provided			
Compressor	14,100 Btu/hr			
Drive Motor	1/2 hp			
Cooling	Water cooled units require 3/8" N.P.T. water and drain fittings.		Air cooled units require 3" (7,6 cm) air space at front and back.	
Hopper Volume	4.5 gallon (17,03 liters)			
Freezing Cylinder Volume	Two - 2 gallon (8 quart), 7,57 liters			
Production Capacity	26 GPH (98,42 liters) per Freezing Cylinder			

	SO328
Refrigerant	R-404A
Charge	32 oz
Suction Pressure (AXV)	32-34 psig
Discharge Pressure	240-270 psig
EPR Valve	69-71 psig

	SO328
Torque Control Spring Length	Mid-Length
Torque Control Timer Delay	10 sec Delay on Make 10 sec Delay on Break
Brix	11-13%

E112 / F112

Manufactured from July, 2006 to Present

TC6.0
Control

	Model E112		Model F112	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	15-1/4" (38,7 cm)	17-1/2" (44,5 cm)	17-1/4" (43,7 cm)	29" (73,7 cm)
height	30-1/2" (77,5 cm)	35" (88,9 cm)	33" (83,7 cm)	44" (111,7 cm)
depth	32" (81,2 cm)	36-1/2" (92,7 cm)	30-1/4" (76,7 cm)	39" (99,0 cm)
Weight	205 lbs (92,1 kg)	215 lbs (97,5 kg)	288 lbs (130,5 kg)	315 lbs (142,9 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**		**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 16A		approximately 10A	
connection type	NEMA5-20P power cord provided		NEMA6-20P power cord provided	
Compressor	6,000 Btu/hr		8,600 Btu/hr	
Drive Motor	1/3 hp		3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides or 4" (10,2 cm) air space in back for side-by-side installation		Air cooled units require 6" (15,24 cm) air space on both sides	
Plumbing Fittings	N/A		Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	3.625 gallon (13,73 liters)		5.375 gallon (20,35 liters)	
Freezing Cylinder Volume	1.25 gallon (5 quart), 4,73 liters		2.125 gallon (8.5 quart), 8,04 liters	
Production Capacity	18 GPH (68,15 liters)		24 GPH (90,87 liters)	

	E112
Refrigerant	R-404A
Charge	20 oz
Superheat out of Evaporator	10°F
Suction Pressure (at 72°F)	Shake 22-24 psig Slush 30-32 psig
Discharge Pressure	Shake 205-215 psig Slush 200-205 psig
EPR Valve	59-61 psig

	F112
Refrigerant	R-404A
Charge	20 oz
Superheat out of Evaporator	10°F
Suction Pressure (at 72°F)	Shake 30-32 psig Slush 38-40 psig
Discharge Pressure	Shake 245-250 psig Slush 255-270 psig
EPR Valve	59-61 psig

U218

Manufactured from 2007 to Present

TC6.0
Control

	Model U218	
Dimensions	**Freezer**	**with crate**
width	18-1/4" (46,3 cm)	25" (63,5 cm)
height	64-1/2" (163,8 cm)	66" (167,5 cm)
depth	33" (83,7 cm)	51" (129,5 cm)
Weight	315 lbs (142,9 kg)	410 lbs (185,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 12A	
connection type	NEMA6-20P power cord provided	
Compressor	11,000 Btu/hr	
Drive Motor	1/2 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space at front and back.	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	7 gallon (26,50 liters)	
Freezing Cylinder Volume	2 gallon (8 quart), 7,57 liters	
Production Capacity	40 GPH (151,45 liters)	

	U218
Refrigerant	R-404A
Charge	(W/C) 24 oz (A/C) 38 oz
Superheat out of Evaporator	°F
Suction Pressure (at 72°F)	30 psig
Discharge Pressure	225-230 psig
EPR Valve	69-71 psig

F167

Manufactured from 2008 to Present

FCB
Control

	Model F167	
Dimensions	**Freezer**	**with crate**
width	24" (60,1 cm)	29-3/4" (75,5 cm)
height	39" (99,0 cm)	47-1/2" (120,7 cm)
depth	35" (88,9 cm)	42-1/4" (107,2 cm)
Weight	380 lbs (172,4 kg)	475 lbs (215,5 kg)
Electrical	**1 Phase, 208-240 VAC, 60Hz**	
circuit ampacity	27A minimum	
overcurrent protection device	45A maximum	
Compressor	15,000 Btu/hr Scroll™ Compressor	
Drive Motor	Three - 1/6 hp	
Air Flow	Air cooled units require 5" (12,7 cm) air space on both sides.	
Water Requirements	Filtered fresh water supply with a pressure between 30-110 psi	
CO2 Requirements	CO2 supply must have a pressure between 70-72 psi	
Freezing Cylinder Volume	2 gallon (8 quart), 7,6 liters	
Production Capacity	9 GPH (34,07 liters) each Freezing Cylinder	

217G / 217RG

Manufactured from 1995 to Present

Challenger
Control

	Model 217G		Model 217RG	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	15" (38,1 cm)	25" (63,5 cm)	15" (38,1 cm)	25" (63,5 cm)
height	63-1/2" (161,3 cm)	67" (170,1 cm)	55-3/4" (141,5 cm)	67" (170,1 cm)
depth	39-1/4" (99,7 cm)	51" (129,5 cm)	39-1/4" (99,7 cm)	51" (129,5 cm)
Weight	415 lbs (188,1 kg)	525 lbs (238,0 kg)	385 lbs (174,5 kg)	495 lbs (224,5 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**		**3 Phase, 208-230 VAC, 60Hz**	
circuit ampacity	27A minimum		20A minimum	
overcurrent protection device	35A maximum		25A maximum	
Compressor	9,500 Btu/hr			
Drive Motor	2 hp			
Air Flow	Air cooled units require 6" (15,24 cm) air space at back and front			
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.			
Hopper Volume	6.5 gallon (24,61 liters)		N/A	
Freezing Cylinder Volume	1.33 gallon (5.32 quart), 5,4 liters			
Production Capacity	15 GPH (56,78 liters)			

	217G
Refrigerant	R-404A
Charge	(W/C) 25 oz (A/C) 32 oz Remote (A/C) 160 oz
Superheat out of Evaporator	6-11°F
Suction Pressure	23-28 psig
Discharge Pressure	225-235 psig
EPR Valve	69-71 psig

225RG

Manufactured from 1996 to Present

Challenger
Control

	Model 225RG	
Dimensions	**Freezer**	**with crate**
width	15" (38,1 cm)	25" (63,5 cm)
height	55-3/4" (141,5 cm)	67" (170,1 cm)
depth	39-1/4" (99,7 cm)	51" (129,5 cm)
Weight	385 lbs (174,5 kg)	495 lbs (224,5 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
circuit ampacity	26A minimum	19A minimum
overcurrent protection device	35A maximum	25A maximum
Compressor	10,000 Btu/hr	
Drive Motor	2 hp	
Air Flow	Air cooled units require 6" (15,2 cm) air space at front and back.	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Freezing Cylinder Volume	1.33 gallon (5.32 quart), 5,4 liters	
Production Capacity	Shake - 24 GPH (90,84 liters)	

	225RG
Refrigerant	R-404A
Charge	(W/C) 25 oz (A/C) 32 oz
Superheat out of Evaporator	6-11°F
Suction Pressure	37-42 psig
Discharge Pressure	225-235 psig
EPR Valve	69-71 psig

237RG / 238RG

Manufactured from 1995 to Present

Challenger
Control

	Model 237RG/238RG	
Dimensions	**Freezer**	**with crate**
width	16" (40,6 cm)	25" (63,5 cm)
height	60-3/4" (154,3 cm)	67" (170,1 cm)
depth	39-1/4" (99,7 cm)	51" (129,5 cm)
Weight	560 lbs (254,0 kg)	675 lbs (306,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
circuit ampacity	25A minimum	18A minimum
overcurrent protection device	35A maximum	25A maximum
Compressor	Two - 14,000 Btu/hr	
Drive Motor	Two - 2 hp	
Plumbing Fittings	Water cooled units require 1/2" N.P.T. water and drain fittings. Air cooled remote is available.	
Freezing Cylinder Volume	Two - 1.33 gallon (5.32 quart), 5,4 liters	
Production Capacity	16 GPH (54,89 liters) per Freezing Cylinder	

	238RG
Refrigerant	R-404A
Charge	(W/C) 27 oz Remote (A/C) 160 oz
Superheat out of Evaporator	6-11°F
Suction Pressure	23-28 psig
Discharge Pressure	225-235 psig

F431

Manufactured from July, 2004 to Present

IntelliTec
Control

	Model F431	
Dimensions	**Freezer**	**with crate**
width	19-1/8" (48,6 cm)	27" (68,5 cm)
height	67-13/16" (172,1 cm)	78" (198,0 cm)
depth	37-11/16" (95,7 cm)	48" (121,9 cm)
Weight	500 lbs (226,8 kg)	650 lbs (294,8 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
circuit ampacity	24A minimum	
overcurrent protection device	30A maximum	
Compressor	11,000 Btu/hr Scroll™ Compressor	
Drive Motor	Two - 3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides, 6" back.	
Plumbing Fittings	Water cooled units require 1/2" N.P.T. water and drain fittings.	
Hopper Volume	Two - 5.5 gallons (20,82 liters)	
Freezing Cylinder Volume	Two - 0.85 gallon (3.4 quart), 3,22 liters	
Production Capacity	9.5 GPH (35,97 liters) each Freezing Cylinder 13.0 GPH (49,21 liters) both Freezing Cylinders	

	F431
Refrigerant	R-404A
Charge	(W/C) 26 oz (A/C) 35 oz
Superheat out of Evaporator	7-10°F
Suction Pressure (at 72°F)	One Cylinder 20-22 psig Both Cylinders 25-27 psig Cab Only 18 psig
Discharge Pressure	240-260 psig
Cab Pressure (only cab running)	18 psig (maintained by the bypass valve)
EPR Valve	78-80 psig

Menu	Display	Value
Basic	CutOut	* amps
	Cut In T	19 °F
	Cycles	20 count
	Stir On	15 seconds
	Stir Off	300 seconds
Advanced	On Time	28 seconds
	Off Time	450 seconds
	Stb Time	120 minutes
	Sl1DrvOn	120 seconds
	Sl1DrOff	180 seconds
	Sl2CutIn	32 °F
	Sl2CtOut	28 °F
	DftOffTm	600 seconds
Storage (Left control only)	Refriger	** 3 Cabinet
	CabCutIn	38 °F
	CabCtOut	34 °F
	Cab Off	13 minutes
	Cab On	130 seconds

Note:

* CutOut value needs to be adjusted to product requirements.

** The Refriger setting on the right control board must be set to None

O411

Manufactured from July, 2004 to Present

IntelliTec Control

	Model O411	
Dimensions	**Freezer**	**with crate**
width	19-1/2" (49,5 cm)	27" (68,5 cm)
height	67" (170,1 cm)	78" (198,0 cm)
depth	38-1/4" (97,2 cm)	48" (121,9 cm)
Weight	450 lbs (204,0 kg)	650 lbs (294,8 kg)
Electrical	**1 Phase, 208-240 VAC, 60Hz**	
running amps	approximately 15A	
connection type	NEMA6-20P power cord provided	
Compressor	13,000 Btu/hr Scroll™ Compressor	
Drive Motor	3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space at the back.	
Plumbing Fittings	Water cooled units require 1/2" N.P.T. water and drain fittings.	
Hopper Volume	8 gallons (30,29 liters)	
Freezing Cylinder Volume	1 gallon (4 quart), 3,79 liters	
Production Capacity	12 GPH (45,43 liters)	

	O411
Refrigerant	R-404A
Charge	34 oz
Superheat out of Evaporator	10-16°F
Suction Pressure (at 72°F)	21-23 psig
Discharge Pressure	175-180 psig
Cab Pressure (only cab running)	16 psig (maintained by the bypass valve)
EPR Valve	78-80 psig

Menu	Display	Value
Basic	CutOut	* amps
	Cut In T	19 °F
	Cycles	20 count
	Stir On	15 seconds
	Stir Off	300 seconds
Advanced	On Time	28 seconds
	Off Time	450 seconds
	Stb Time	120 minutes
	Sl1DrvOn	120 seconds
	Sl1DrOff	180 seconds
	Sl2CutIn	38 °F
	Sl2CtOut	28 °F
	DftOffTm	720 seconds
Storage	Refriger	3 Cabinet
	CabCutIn	38 °F
	CabCtOut	34 °F
	Cab Off	13 minutes
	Cab On	130 seconds

Note:

* CutOut value needs to be adjusted to product requirements.

U421 / U431 / U444

Manufactured from 1998 to Present

Challenger
Control

	U421/U431/U444 Water Cooled				U421/U431/U444 Air Cooled			
Dimensions	**Freezer**		**with crate**		**Freezer**		**with crate**	
width	26-3/4" (67,9 cm)		34" (86,4 cm)		26-3/4" (67,9 cm)		34" (86,4 cm)	
height	65-3/4" (167,0 cm)		78" (198,0 cm)		67-3/4" (172,0 cm)		78" (198,0 cm)	
depth	39-3/4" (100,1 cm)		48" (121,9 cm)		39-3/4" (100,1 cm)		48" (121,9 cm)	
Weight	760 lbs (344,6 kg)		908 lbs (411,8 kg)		785 lbs (356,1 kg)		935 lbs (424,1 kg)	
Electrical	**1 PH**		**3 PH**		**1 PH**		**3 PH**	
	left	**right**	**left**	**right**	**left**	**right**	**left**	**right**
minimum circuit ampacity	31A	31A	21A	21A	36A	31A	26A	21A
maximum overcurrent protection device	45A	45A	30A	30A	50A	45A	35A	30A
Compressor	Two - 18,000 Btu/hr							
Drive Motor	Two - 2 hp							
Cooling	Water cooled units require 1/2" N.P.T. water and drain fittings.				Air cooled units require 3" (7,6 cm) air space on right, 10" (25,4 cm) above.			
Hopper Volume	Two - 8 gallon (30,28 liters)							
Freezing Cylinder Volume	Two - 1.33 gallon (5.32 quart), 5,4 liters							
Production Capacity	Soft Serve - 18 GPH (68,14 liters) Shake - 27 GPH (102,21 liters)							

	U421/U431/U444 Water Cooled	U421/U431/U444 Air Cooled
Refrigerant	R-404A	R-404A
Charge	Left Side - 27 oz Right Side - 25 oz	Left Side - 37 oz Right Side - 34 oz
Superheat out of Evaporator	6-11°F	6-11°F
Suction Pressure	Soft Serve - 21-23 psig Shake - 25-36 psig	Soft Serve - 21-23 psig Shake - 25-36 psig
Discharge Pressure	220-230 psig	220-230 psig
EPR Valve	78-80 psig	78-80 psig
Cab Suction Pressure	20-25 psig	20-25 psig
Thermostat Cutout	Set at Max - 21.5°F Set at 1:30 - 25.0°F	Set at Max - 21.5°F Set at 1:30 - 25.0°F

U421 / U431 Remote Air Cooled

Manufactured from July, 2004 to Present

Challenger Control

	U421/U431/U444 Remote Air Cooled			
Dimensions	**Freezer**		**with crate**	
width	26-3/4" (67,9 cm)		34" (86,4 cm)	
height	67-3/4" (172,0 cm)		78" (198,0 cm)	
depth	39-3/4" (100,1 cm)		48" (121,9 cm)	
Weight	760 lbs (344,6 kg)		908 lbs (411,8 kg)	
Electrical	**1 Phase, 208-230 VAC, 60Hz**		**3 Phase, 208-230 VAC, 60Hz**	
	left	**right**	**left**	**right**
circuit ampacity	36A minimum	31A minimum	21A minimum	21A minimum
overcurrent protection device	50A maximum	45A maximum	30A maximum	30A maximum
Compressor	Two - 18,000 Btu/hr			
Drive Motor	Two - 2 hp			
Cooling	Remote Air Cooled - Requires two condensers and two precharged line sets.			
Hopper Volume	Two - 8 gallon (30,28 liters)			
Freezing Cylinder Volume	Two - 1.33 gallon (5.32 quart), 5,4 liters			
Production Capacity	Soft Serve - 18 GPH (68,14 liters) Shake - 27 GPH (102,21 liters)			

	U421/U431 Remote Air Cooled Condenser
Refrigerant	R-404A
Charge	244 oz
Superheat out of Evaporator	6-11°F
Suction Pressure	Soft Serve - 21-23 psig Shake - 25-36 psig
Discharge Pressure	220-230 psig
EPR Valve	78-80 psig
Cab Suction Pressure	20-25 psig
Thermostat Cutout	Set at Max - 21.5°F Set at 1:30 - 25.0°F

SU412

Manufactured from December, 2006 to Present

IntelliTec
Control

	Model SU412	
Dimensions	**Freezer**	**with crate**
width	19-1/2" (49,5 cm)	27" (68,5 cm)
height	67" (170,1 cm)	78" (198,0 cm)
depth	38-1/4" (97,2 cm)	48" (121,9 cm)
Weight	450 lbs (204,0 kg)	650 lbs (294,8 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
circuit ampacity	19A minimum	
overcurrent protection device	30A maximum	
Compressor	11,000 Btu/hr Scroll™ Compressor	
Drive Motor	3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides, 6" back.	
Plumbing Fittings	Water cooled units require 1/2" N.P.T. water and drain fittings.	
Hopper Volume	8 gallons (30,29 liters)	
Freezing Cylinder Volume	2.1 gallon (8.4 quart), 7,95 liters	
Production Capacity	30 GPH (113,56 liters)	

	SU412
Refrigerant	R-404A
Charge	32 oz
Superheat out of Evaporator	7-10°F
Suction Pressure (at 72°F)	25-27 psig
Discharge Pressure	210-235 psig
Cab Pressure (only cab running)	18 psig (maintained by the bypass valve)
EPR Valve	78-80 psig

Menu	Display	Value
Basic	CutOut	* amps
	Cut In T	26.5 °F
	Cycles	20 count
	Stir On	15 seconds
	Stir Off	300 seconds
Advanced	On Time	28 seconds
	Off Time	450 seconds
	Stb Time	120 minutes
	Sl1DrvOn	120 seconds
	Sl1DrOff	180 seconds
	Sl2CutIn	37 °F
	Sl2CtOut	31 °F
	DftOffTm	900 seconds
Storage	Refriger	3 Cabinet
	CabCutIn	38 °F
	CabCtOut	34 °F
	Cab Off	13 minutes
	Cab On	130 seconds

Note:

* CutOut value needs to be adjusted to product requirements.

O431

Manufactured from 2007 to Present

IntelliTec
Control

	Model O431	
Dimensions	**Freezer**	**with crate**
width	19-1/8" (48,6 cm)	27" (68,5 cm)
height	67-7/8" (172,4 cm)	78" (198,0 cm)
depth	37-3/4" (95,9 cm)	48" (121,9 cm)
Weight	500 lbs (226,8 kg)	650 lbs (294,8 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
	Air Cooled	**Water Cooled**
circuit ampacity	27A minimum	29A minimum
overcurrent protection device	40A maximum	40A maximum
Compressor	15,000 Btu/hr Scroll™ Compressor	
Drive Motor	Two - 3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides, 6" back.	
Plumbing Fittings	Water cooled units require 1/2" N.P.T. water and drain fittings.	
Hopper Volume	Two - 5.5 gallons (20,82 liters)	
Freezing Cylinder Volume	Two - 0.85 gallon (3.4 quart), 3,22 liters	
Production Capacity	9.5 GPH (35,97 liters) each Freezing Cylinder 13.0 GPH (49,21 liters) both Freezing Cylinders	

	O431
Refrigerant	R-404A
Charge	36 oz
Superheat out of Evaporator	°F
Suction Pressure (at 72°F)	19-21 psig
Discharge Pressure	195-215 psig
EPR Valve	78-80 psig

Menu	Display	Value
Basic	CutOut	* amps
	Cut In T	19 °F
	Cycles	20 count
	Stir On	15 seconds
	Stir Off	300 seconds
Advanced	On Time	28 seconds
	Off Time	450 seconds
	Stb Time	120 minutes
	Sl1DrvOn	120 seconds
	Sl1DrOff	180 seconds
	Sl2CutIn	32 °F
	Sl2CtOut	28 °F
	DftOffTm	600 seconds
Storage (Left control only)	Refriger	** 3 Cabinet
	CabCutIn	38 °F
	CabCtOut	34 °F
	Cab Off	13 minutes
	Cab On	130 seconds

Note:

* CutOut value needs to be adjusted to product requirements.

** The Refriger setting on the right control board must be set to None

Pumps

219 Manufactured from 1975 to Present
U3-02A Manufactured from 1995 to Present

	219
Dimensions	**Pump**
width	15" (38,1 cm)
height	17-1/2" (44,5 cm)
depth	8-3/4" (22,1 cm)
Electrical	**1 Phase, 115 VAC, 60Hz**
running amps	approximately 0.7A
connection type	NEMA5-15P power cord provided
Pressure	17.5 psig cut in to 24 psig cut out
Output	45 gallons per hour

	U3-02A	
Dimensions	**Pump**	**with crate**
width	9-3/4" (24,8 cm)	11-1/4" (28,6 cm)
height	8-1/2" (21,6 cm)	11-3/4" (29,8 cm)
depth	10-1/2" (26,6 cm)	13-1/4" (33,7 cm)
Weight	26 lbs (11,8 kg)	28 lbs (12,6 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**	
running amps	approximately 1.6A	
connection type	NEMA5-15P power cord provided	
Pressure	17 psig cut in to 24 psig cut out	
Output	27 gallons per hour - Equivalent to 36 gallons per hour of frozen product.	

4231H

Manufactured from January, 2004 to Present

Type 2
Control

	4231H Water Cooled				4231H Air Cooled			
Dimensions	**Freezer**		**with crate**		**Freezer**		**with crate**	
width	26" (66,0 cm)		32-1/2" (82,5 cm)		26" (66,0 cm)		32-1/2" (82,5 cm)	
height	62" (157,5 cm)		64" (162,5 cm)		62" (157,5 cm)		64" (162,5 cm)	
depth	30-1/4" (76,7 cm)		40-1/2" (102,9 cm)		30-1/4" (76,7 cm)		40-1/2" (102,9 cm)	
Weight	690 lbs (312,1 kg)		810 lbs (367,3 kg)		690 lbs (312,1 kg)		810 lbs (367,3 kg)	
Electrical	**1 PH**		**3 PH**		**1 PH**		**3 PH**	
	left	**right**	**left**	**right**	**left**	**right**	**left**	**right**
minimum circuit ampacity	23A	23A	19A	19A	28A	23A	24A	19A
maximum overcurrent protection device	30A	30A	25A	25A	35A	30A	30A	25A
Compressor	Two - 12,000 Btu/hr							
Drive Motor	Two - 2 hp							
Cooling	Water cooled units require 3/8" N.P.T. water and drain fittings with 2 inlets and 2 outlets or 1/2" N.P.T. water and drain fittings with 1 inlet and 1 outlet				Air cooled units require 6" (15,2 cm) air space at back.			
Hopper Volume	Two - 6.5 gallon (24,7 liters)							
Freezing Cylinder Volume	Two - 1 gallon (4 quart), 3,79 liters							
Production Capacity	10 GPH (37,85 liters) per Freezing Cylinder							

	4231H
Refrigerant	R-404A
Charge	(W/C) 26 oz (A/C) 35 oz
Superheat out of Evaporator	11-17°F
Suction Pressure	23-24 psig
Discharge Pressure	225-235 psig
EPR Valve	63-65 psig

	4231-18H/4231-38H	4231-109H/4231-309H
Coarse Consistency Adjustment Note: Stop is 6:00	2:00 	2:30 
OFF Time Setting	H - 33-37 sec	H - 33-37 sec
ON Time Setting	28 sec	28 sec
Motor Adjustment Switches	9:00	8:00
Open	9 - 10	9 - 10
Closed	1 - 8	1 - 8

E111I / F111I

Manufactured from February, 2006 to Present

IntelliTec Control

	Model E111I		Model F111I	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	15" (38,1 cm)	19-1/2" (49,5 cm)	15" (38,1 cm)	19-1/2" (49,5 cm)
height	35-3/4" (90,7 cm)	43" (109,2 cm)	35-3/4" (90,7 cm)	43" (109,2 cm)
depth	28-3/4" (73,0 cm)	33-1/2" (85,0 cm)	28-3/4" (73,0 cm)	33-1/2" (85,0 cm)
Weight	220 lbs (99,7 kg)	265 lbs (120,2 kg)	230 lbs (104,2 kg)	275 lbs (124,7 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**		**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 12A		approximately 10A	
connection type	NEMA5-20P power cord provided		NEMA6-15P power cord provided	
Compressor	3,550 Btu/hr		4,770 Btu/hr	
Drive Motor	3/4 hp			
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides			
Plumbing Fittings	N/A		Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	3 gallon (11,35 liters)			
Freezing Cylinder Volume	0.65 gallon (2.6 quart), 2,46 liters		0.85 gallon (3.4 quart), 3,22 liters	
Production Capacity	5 GPH (18,93 liters)		8 GPH (30,29 liters)	

	E111I / F111I
Refrigerant	R-404A
Charge	E111I - 28 oz F111I - 30 oz
Superheat out of Evaporator	10°F
Suction Pressure (at 72°F)	Freezing Cylinder Only 19-22 psig Freezing Cylinder & Hopper 22-25 psig Hopper Only 14 psig
Discharge Pressure	225-235 psig
Hot Gas Bypass Pressure	14 psig (only hopper running)
EPR Valve	59-61 psig

Menu	Display	E111I	F111I
Basic	CutOut	* amps	* amps
	Cut In T	18 °F	21 °F
	Cycles	20 count	20 count
	Stir On	15 seconds	15 seconds
	Stir Off	300 seconds	300 seconds
Advanced	On Time	15 seconds	15 seconds
	Off Time	450 seconds	450 seconds
	Stb Time	120 minutes	120 minutes
	Sl1DrvOn	120 seconds	120 seconds
	Sl1DrOff	180 seconds	180 seconds
	Sl2CutIn	33 °F	33 °F
	Sl2CtOut	30.5 °F	30.5 °F
	DftOffTm	540 seconds	600 seconds
Storage	Refriger	1 Hopper	1 Hopper
	HprCutIn	34 °F	34 °F
	HprCtOut	32 °F	32 °F
	HprOffst	8 °F	8 °F
	Hpr Off	13 minutes	13 minutes
	Hpr On	60 seconds	60 seconds

Note:

* CutOut value needs to be adjusted to product requirements.

E131I

Manufactured from May, 2005 to Present

IntelliTec
Control

	Model E131I	
Dimensions	**Freezer**	**with crate**
width	22" (55,8 cm)	28" (71,0 cm)
height	34-3/4" (88,2 cm)	40-1/4" (102,2 cm)
depth	28-1/2" (72,4 cm)	35-1/4" (89,5 cm)
Weight	370 lbs (167,8 kg)	450 lbs (204,0 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 12A	
connection type	NEMA6-20P power cord provided	
Compressor	8,600 Btu/hr (R404A)	
Drive Motor	Two - 3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	Two - 3 gallon (11,35 liters)	
Freezing Cylinder Volume	Two - 0.5 gallon (2 quart), 1,89 liters	
Production Capacity	5 GPH (18,93 liters) each Freezing Cylinder 8.5 GPH (32,18 liters) both Freezing Cylinders	

	E131I
Refrigerant	R-404A
Charge	32 oz
Superheat out of Evaporator	6-7°F
Suction Pressure (at 72°F)	One Cylinder 18-22 psig Both Cylinders 22-27 psig Hopper Only 14 psig
Discharge Pressure	225-235 psig
Hot Gas Bypass Pressure	14 psig (only hopper running)
EPR Valve	59-61 psig

Menu	Display	Value
Basic	CutOut	* amps
	Cut In T	19 °F
	Cycles	20 count
	Stir On	15 seconds
	Stir Off	300 seconds
Advanced	On Time	25 seconds
	Off Time	450 seconds
	Stb Time	120 minutes
	Sl1DrvOn	120 seconds
	Sl1DrOff	180 seconds
	Sl2CutIn	35 °F
	Sl2CtOut	30 °F
	DftOffTm	600 seconds
Storage (Left control only)	Refriger	** 2 All
	HprCutIn	31.5 °F
	HprCtOut	27 °F
	HprOffst	8 °F
	Hpr Off	13 minutes
	Hpr On	130 seconds

Note:

* CutOut value needs to be adjusted to product requirements.

** The Refriger setting on the right control board must be set to None

F131I

Manufactured from July, 2005 to Present

IntelliTec
Control

	Model F131I	
Dimensions	**Freezer**	**with crate**
width	22" (55,8 cm)	28" (71,0 cm)
height	34-3/4" (88,2 cm)	40-1/4" (102,2 cm)
depth	28-1/2" (72,4 cm)	35-1/4" (89,5 cm)
Weight	385 lbs (174,5 kg)	470 lbs (213,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 12A	
connection type	NEMA6-20P power cord provided	
Compressor	12,000 Btu/hr (R404A)	
Drive Motor	Two - 3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	Two - 3 gallon (11,35 liters)	
Freezing Cylinder Volume	Two - 0.85 gallon (3.4 quart), 3,22 liters	
Production Capacity	7 GPH (26,50 liters) each Freezing Cylinder 11.5 GPH (43,53 liters) both Freezing Cylinders	

	F131I
Refrigerant	R-404A
Charge	(W/C) 32 oz (A/C) 42 oz
Superheat out of Evaporator	6-7°F
Suction Pressure (at 72°F)	One Cylinder 18-22 psig Both Cylinders 22-27 psig Hopper Only 14 psig
Discharge Pressure	225-235 psig
Hot Gas Bypass Pressure	14 psig (only hopper running)
EPR Valve	59-61 psig

Menu	Display	Value
Basic	CutOut	* amps
	Cut In T	19 °F
	Cycles	20 count
	Stir On	15 seconds
	Stir Off	300 seconds
Advanced	On Time	15 seconds
	Off Time	450 seconds
	Stb Time	120 minutes
	Sl1DrvOn	120 seconds
	Sl1DrOff	180 seconds
	Sl2CutIn	33 °F
	Sl2CtOut	30.5 °F
	DftOffTm	600 seconds
Storage (Left control only)	Refriger	** 2 Hopper
	HprCutIn	31.5 °F
	HprCtOut	27 °F
	HprOffst	8 °F
	Hpr Off	13 minutes
	Hpr On	130 seconds

Note:

* CutOut value needs to be adjusted to product requirements.

** The Refriger setting on the right control board must be set to None

Manufactured from January, 2004 to Present

IntelliTec
Control

	Model F144 / SF144	
Dimensions	**Freezer**	**with crate**
width	22" (55,8 cm)	28" (71,0 cm)
height	34-3/4" (88,2 cm)	40-1/4" (102,2 cm)
depth	28-1/2" (72,4 cm)	35-1/4" (89,5 cm)
Weight	385 lbs (174,5 kg)	470 lbs (213,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 11A	
connection type	NEMA6-20P power cord provided	
Compressor	12,000 Btu/hr	
Drive Motor	Two - 3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	Two - 3 gallon (11,35 liters)	
Freezing Cylinder Volume	Two - 0.85 gallon (3.4 quart), 3,22 liters	
Production Capacity	Individually	Soft Serve - 7 GPH (26,50 liters) Left Side Shake/Smoothie - 11 GPH (41,64 liters) Right Side
	Both Sides Running	Soft Serve - 5.6 GPH (21,20 liters) Left Side Shake/Smoothie - 8 GPH (30,28 liters) Right Side

	F144
Refrigerant	R-404A
Charge	(W/C) 32 oz (A/C) 42 oz
Superheat out of Evaporator	7-16°F
Suction Pressure (at 72°F)	One Cylinder 18-22 psig Both Cylinders 22-26 psig Hopper Only 14 psig
Discharge Pressure	225-235 psig
Hot Gas Bypass Pressure	14 psig (only hopper running)
EPR Valve	59-61 psig

Menu	Display	Value
Basic	CutOut	* amps
	Cut In T	19 °F
	Cycles	20 count
	Stir On	15 seconds
	Stir Off	300 seconds
Advanced	On Time	15 seconds
	Off Time	450 seconds
	Stb Time	120 minutes
	Sl1DrvOn	120 seconds
	Sl1DrOff	180 seconds
	Sl2CutIn	33 °F
	Sl2CtOut	30.5 °F
	DftOffTm	600 seconds
Storage (Left control only)	Refriger	** 2 Hopper
	HprCutIn	31.5 °F
	HprCtOut	27 °F
	HprOffst	8 °F
	Hpr Off	13 minutes
	Hpr On	130 seconds

Note:

* CutOut value needs to be adjusted to product requirements.

** The Refriger setting on the right control board must be set to None

O111I

Manufactured from August, 2006 to Present

IntelliTec
Control

	Model O111I	
Dimensions	**Freezer**	**with crate**
width	19-3/4" (50,2 cm)	28-3/4" (73,0 cm)
height	36-1/4" (92,0 cm)	43" (109,2 cm)
depth	32-1/2" (82,5 cm)	38-3/4" (98,4 cm)
Weight	310 lbs (140,5 kg)	400 lbs (181,4 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 12A	
connection type	NEMA6-20P power cord provided	
Compressor	12,000 Btu/hr	
Drive Motor	1-1/2 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 1/2" N.P.T. water and drain fittings.	
Hopper Volume	6.5 gallons (24,61 liters)	
Freezing Cylinder Volume	1 gallon (4 quart), 3,79 liters	
Production Capacity	11.5 GPH (43,53 liters)	

	O111I
Refrigerant	R-404A
Charge	(W/C) 24 oz (A/C) 32 oz
Superheat out of Evaporator	10°F
Suction Pressure (at 72°F)	Freezing Cylinder Only 20-22 psig Freezing Cylinder & Hopper 22-24 psig Hopper Only 18 psig
Discharge Pressure	225-235 psig
Hot Gas Bypass Pressure	18 psig (only hopper running)
EPR Valve	59-61 psig

Menu	Display	Value
Basic	CutOut	* amps
	Cut In T	21 °F
	Cycles	20 count
	Stir On	15 seconds
	Stir Off	300 seconds
Advanced	On Time	15 seconds
	Off Time	450 seconds
	Stb Time	120 minutes
	Sl1DrvOn	120 seconds
	Sl1DrOff	180 seconds
	Sl2CutIn	35 °F
	Sl2CtOut	30.5 °F
	DftOffTm	600 seconds
Storage	Refriger	1 Hopper
	HprCutIn	34 °F
	HprCtOut	32 °F
	HprOffst	8 °F
	Hpr Off	13 minutes
	Hpr On	60 seconds

Note:

* CutOut value needs to be adjusted to product requirements.

O112

Manufactured from 2001 to Present

Type 4
Control

	Model O112	
Dimensions	**Freezer**	**with crate**
width	30-1/4" (76,7 cm)	38-3/4" (98,4 cm)
height	18" (45,7 cm)	28-3/4" (73,0 cm)
depth	37-1/4" (94,5 cm)	43" (109,2 cm)
Weight	290 lbs (131,5 kg)	360 lbs (163,3 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 10.5A	
connection type	NEMA6-20P power cord provided	
Compressor	12,000 Btu/hr	
Drive Motor	3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 1/2" N.P.T. water and drain fittings.	
Hopper Volume	7 gallons (26,50 liters)	
Freezing Cylinder Volume	2.1 gallon (8.4 quart), 7,95 liters	
Production Capacity	26 GPH (98,42 liters)	

	O112
Refrigerant	R-404A
Charge	35 oz
Superheat out of Evaporator	6-14°F
Suction Pressure	29-31 psig
Discharge Pressure	240-250 psig
Hopper Evaporator Back Pressure	69-71 psig

Set Button	Display	O112
1	SEC TM	3
2	TM STB	10
3	SEC TM STB	48
4	AMP CRS	*
5	SRV	28
6	STB	32
7	LKG STB	5
8	MTR	0.5
9	HPR	45
10	LKG	32
CYCLE		8

Note:

* AMP CRS value needs to be adjusted to product requirements.

O212

Manufactured from 2001 to Present

Type 4
Control

	Model O212	
Dimensions	**Freezer**	**with crate**
width	28-3/4" (73,0 cm)	51" (129,5 cm)
height	17-3/4" (45,1 cm)	25" (63,5 cm)
depth	63-3/4" (161,9 cm)	66" (167,5 cm)
Weight	332 lbs (150,5 kg)	427 lbs (193,6 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
running amps	approximately 10.5A	approximately 16A
connection type	NEMA6-20P power cord provided	
Compressor	12,000 Btu/hr	
Drive Motor	3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 1/2" N.P.T. water and drain fittings.	
Hopper Volume	7 gallons (26,50 liters)	
Freezing Cylinder Volume	2.1 gallon (8.4 quart), 7,95 liters	
Production Capacity	26 GPH (98,42 liters)	

	O212
Refrigerant	R-404A
Charge	(W/C) 27 oz (A/C) 35 oz
Superheat out of Evaporator	2-12°F
Suction Pressure	29-31 psig
Discharge Pressure	240-250 psig
Hopper Evaporator Back Pressure	69-71 psig

Set Button	Display	O212
1	SEC TM	3
2	TM STB	10
3	SEC TM STB	48
4	AMP CRS	*
5	SRV	28
6	STB	32
7	LKG STB	5
8	MTR	0.5
9	HPR	45
10	LKG	32
CYCLE		8

Note:

* AMP CRS value needs to be adjusted to product requirements.

IntelliTec
Control

	CF101	
Dimensions	**Freezer**	**with crate**
width	19-1/2" (49,5 cm)	38-3/4" (98,4 cm)
height	37-3/4" (95,9 cm)	28-3/4" (73,0 cm)
depth	28" (71,0 cm)	43" (109,2 cm)
Weight	310 lbs (140,5 kg)	380 lbs (172,4 kg)
Electrical	**1 Phase, 208-240 VAC, 60Hz**	
running amps	approximately 15A	
connection type	NEMA6-20P power cord provided	
Compressor	14,000 Btu/hr	
Drive Motor	1-1/2 hp	
Air Flow	Air cooled units require 6" (15,2 cm) air space at left and right sides and 10" (25,4) air space above the freezer.	
Hopper Volume	5.4 gallon (30,28 liters)	
Freezing Cylinder Volume	0.8 gallon (3.2 quart), 3,03 liters	

	CF101
Refrigerant	R-404A
Charge	64 oz
Superheat out of Evaporator	8°F
Suction Pressure (at 72°F)	Freezing Cylinder Only 21 psig Freezing Cylinder & Hopper 23 psig Hopper Only 14 psig
Discharge Pressure	235-305 psig
Hot Gas Bypass Pressure	14 psig (only hopper running)
EPR Valve	59-61 psig

Menu	Display	Value
Product 1	Cut In T	-2 °F
	Cut Out T	-18 °F
Product 2	Cut In T	-5 °F
	Cut Out T	-13 °F
	On Time	180 seconds
	Off Time	30 seconds
Standby	Cut In T	40 °F
	Cut Out T	30 °F
	On Time	60 seconds
	Off Time	600 seconds
Storage	HprCutIn	38 °F
	HprCtOut	32 °F
	Hpr On	60 seconds
	Hpr Off	13 minutes

CC101

	CC101 Air Cooled		CC101 Water Cooled	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	20" (50,7 cm)	42-1/2" (107,1 cm)	20" (50,7 cm)	42-1/2" (107,1 cm)
height	61-1/2" (156,1 cm)	67" (170,1 cm)	61-1/2" (156,1 cm)	67" (170,1 cm)
depth	47" (119,4 cm)	60" (152,4 cm)	47" (119,4 cm)	60" (152,4 cm)
Weight	850 lbs (385,6 kg)	1130 lbs (512,6 kg)	1100 lbs (498,1 kg)	1380 lbs (625,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
breaker size	30A	20A	40A	30A
Hopper Condenser	**1 Phase, 115 VAC, 60Hz** NEMA5-15P power cord provided			
Drive Motor	3 hp			
Cooling	Air cooled units require a remote condenser		Water cooled units require a Standard Hose Adapter watter fitting and a 5/8" OD drain fitting.	
Hopper Volume	6 gallon (22,71 liters)			

	CC101*
Refrigerant	R-404A
Charge	(A/C) 24 lbs
AXV	28-32 psig
Head Pressure Regulator (Water Valve)	(A/C) 255 psig (W/C) 225-235 psig
Crankcase Pressure Regulator	25 psig
Lemon Ice AXV	40 psig
	Hopper
Hopper Refrigerant	R-134A
Hopper Charge	1lb

	Hopper
F/C	F
Temp	39°F
Diff	1
Mode	C1
	Hold Cycle
F/C	F
Temp	38°F
Diff	1
Mode	C1

Note:

* There is a separate refrigeration system for each freezing cylinder and a separate refrigeration system for hopper cooling. The refrigeration specifications are per freezing cylinder.

CC202

	CC202 Air Cooled		CC202 Water Cooled	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	25-1/2" (64,7 cm)	42-1/2" (107,1 cm)	25-1/2" (64,7 cm)	42-1/2" (107,1 cm)
height	61-1/2" (156,1 cm)	67" (170,1 cm)	61-1/2" (156,1 cm)	67" (170,1 cm)
depth	47" (119,4 cm)	60" (152,4 cm)	47" (119,4 cm)	60" (152,4 cm)
Weight	905 lbs (410,5 kg)	1205 lbs (546,6 kg)	1206 lbs (547,0 kg)	1506 lbs (683,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
breaker size per barrel	30A	20A	40A	30A
Hopper Condenser	**1 Phase, 115 VAC, 60Hz** NEMA5-15P power cord provided			
Drive Motor	Two - 3 hp			
Cooling	Air cooled units require a remote condenser per barrel		Water cooled units require a Standard Hose Adapter watter fitting and a 5/8" OD drain fitting for each barrel.	
Hopper Volume	Two - 6 gallon (22,71 liters)			

	CC202*
Refrigerant	R-404A
Charge	(A/C) 24 lbs
AXV	28-32 psig
Head Pressure Regulator (Water Valve)	(A/C) 255 psig (W/C) 225-235 psig
Crankcase Pressure Regulator	25 psig
Lemon Ice AXV	40 psig
	Hopper
Hopper Refrigerant	R-134A
Hopper Charge	1 lb 2 oz

	Hopper
F/C	F
Temp	39°F
Diff	1
Mode	C1
	Hold Cycle
F/C	F
Temp	38°F
Diff	1
Mode	C1

Note:

* There is a separate refrigeration system for each freezing cylinder and a separate refrigeration system for hopper cooling. The refrigeration specifications are per freezing cylinder.

CC303

	CC303 Air Cooled		CC303 Water Cooled	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	32" (81,2 cm)	44-1/2" (113,0 cm)	32" (81,2 cm)	44-1/2" (113,0 cm)
height	61-1/2" (156,1 cm)	67" (170,1 cm)	61-1/2" (156,1 cm)	67" (170,1 cm)
depth	47" (119,4 cm)	60" (152,4 cm)	47" (119,4 cm)	60" (152,4 cm)
Weight	905 lbs (410,5 kg)	1205 lbs (546,6 kg)	1206 lbs (547,0 kg)	1506 lbs (683,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
breaker size per barrel	30A	20A	40A	30A
Hopper Condenser	**1 Phase, 115 VAC, 60Hz** NEMA5-15P power cord provided			
Drive Motor	Three - 3 hp			
Cooling	Air cooled units require a remote condenser per barrel		Water cooled units require a Standard Hose Adapter watter fitting and a 5/8" OD drain fitting for each barrel.	
Hopper Volume	Three - 6 gallon (22,71 liters)			

	CC303*
Refrigerant	R-404A
Charge	(A/C) 24 lbs
AXV	28-32 psig
Head Pressure Regulator (Water Valve)	(A/C) 255 psig (W/C) 225-235 psig
Crankcase Pressure Regulator	25 psig
Lemon Ice AXV	40 psig
	Hopper
Hopper Refrigerant	R-134A
Hopper Charge	1 lb 3 oz

	Hopper
F/C	F
Temp	39°F
Diff	1
Mode	C1
	Hold Cycle
F/C	F
Temp	38°F
Diff	1
Mode	C1

Note:

* There is a separate refrigeration system for each freezing cylinder and a separate refrigeration system for hopper cooling. The refrigeration specifications are per freezing cylinder.

CC404

	CC404	
Dimensions	**Freezer**	**with crate**
width	42" (106,7 cm)	50" (127,0 cm)
height	61-1/2" (156,1 cm)	67" (170,1 cm)
depth	47" (119,4 cm)	60" (152,4 cm)
Weight	1625 lbs (737,1 kg)	2025 lbs (918,5 kg)
Electrical	**3 Phase, 208-230 VAC, 60Hz**	
breaker size per barrel	20A Breaker	
Hopper Condenser	**1 Phase, 115 VAC, 60Hz** NEMA5-15P power cord provided	
Drive Motor	Four - 3 hp	
Cooling	Air cooled units require a remote condenser per barrel	Water cooled units require a Standard Hose Adapter watter fitting and a 5/8" OD drain fitting for each barrel.
Hopper Volume	Four - 6 gallon (22,71 liters)	

	CC404*
Refrigerant	R-404A
Charge	(A/C) 24 lbs
AXV	28-32 psig
Head Pressure Regulator (Water Valve)	(A/C) 255 psig (W/C) 225-235 psig
Crankcase Pressure Regulator	25 psig
Lemon Ice AXV	40 psig
	Hopper
Hopper Refrigerant	R-134A
Hopper Charge	1 lb 4 oz

	Hopper
F/C	F
Temp	39°F
Diff	1
Mode	C1
	Hold Cycle
F/C	F
Temp	38°F
Diff	1
Mode	C1

Note:

* There is a separate refrigeration system for each freezing cylinder and a separate refrigeration system for hopper cooling. The refrigeration specifications are per freezing cylinder.

M202

	M202 Air Cooled		M202 Water Cooled	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	27-1/2" (69,9 cm)	42-1/2" (107,1 cm)	27-1/2" (69,9 cm)	42-1/2" (107,1 cm)
height	57-1/2" (146,0 cm)	67" (170,1 cm)	57-1/2" (146,0 cm)	67" (170,1 cm)
depth	32" (81,2 cm)	48" (121,9 cm)	32" (81,2 cm)	48" (121,9 cm)
Weight	645 lbs (292,6 kg)	945 lbs (428,6 kg)	845 lbs (383,3 kg)	1100 lbs (498,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
breaker size per barrel	20A	15A	30A	20A
Drive Motor	Two - 2 hp			
Cooling	Air cooled units require a remote condenser per barrel		Water cooled units require a Standard Hose Adapter watter fitting and a 3/4" OD drain fitting for each barrel.	
Hopper Volume	Two - 6 gallon (22,71 liters)			

	M202A*
Refrigerant	R-404A
Charge	(A/C) 20 lbs (W/C) 8 lbs
AXV	28-32 psig
Head Pressure Regulator (Water Valve)	(A/C) 255 psig (W/C) 225-235 psig
Crankcase Pressure Regulator	25 psig
Lemon Ice AXV	40 psig
Hopper Pressure	55 psig

	Hopper
F/C	F
Temp	36°F
Diff	1
Mode	C1
	Hold Cycle
F/C	F
Temp	38°F
Diff	1
Mode	C1

Note:

* There is a separate refrigeration system for each freezing cylinder. The refrigeration specifications are per freezing cylinder.

Dipping Cabinets

	MDC2		MDC3		MDC4	
Dimensions	**Cabinet**	**with crate**	**Cabinet**	**with crate**	**Cabinet**	**with crate**
width	24" (60,1 cm)	60" (152,4 cm)	34" (86,4 cm)	60" (152,4 cm)	44-3/4" (113,7 cm)	60" (152,4 cm)
height	36" (91,4 cm)	44" (111,7 cm)	36" (91,4 cm)	44" (111,7 cm)	36" (91,4 cm)	44" (111,7 cm)
depth	14-1/4" (36,2 cm)	35-3/4" (90,7 cm)	14-1/4" (36,2 cm)	35-3/4" (90,7 cm)	14-1/4" (36,2 cm)	35-3/4" (90,7 cm)
Weight	203 lbs (92,0 kg)	383 lbs (173,6 kg)	203 lbs (92,0 kg)	383 lbs (173,6 kg)	218 lbs (98,9 kg)	383 lbs (173,6 kg)
Electrical connection type	**1 Phase, 115 VAC, 60Hz** NEMA5-15P power cord provided					
Dipping Well	Two - 4.25 gallon square buckets with lids		Three - 4.25 gallon square buckets with lids		Four - 4.25 gallon square buckets with lids	

VB9

Manufactured from 2001 to Present

	VB9	
Dimensions	**Freezer**	**with crate**
width	16" (40,6 cm)	19" (48,2 cm)
height	25" (63,5 cm)	35" (88,9 cm)
depth	20" (50,7 cm)	23" (58,3 cm)
Weight	143 lbs (64,9 kg)	179 lbs (81,2 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**	
running amps	approximately 15A	
fuse size	20A maximum	
breaker type	HACR or regular	
Compressor	0.6 hp hermetic	
Drive Motor	1-1/3 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space at both sides and back	
Cylinder Capacity	1.75 gallon (6,63 liters)	
Liquid Mix Per Batch	1-2 quarts	
Working Cycle	15 minutes	
Production Capacity	2.25 GPH (8,52 liters)	

	VB9
Refrigerant	R-404A
Charge	21.2 oz
Suction Pressure (at 77°F ambient)	29 psig at -4°F to 16 psig at -20°F
Discharge Pressure	247 psig at 104°F to 319 psig at 122°F

VB25 / VB35

Manufactured from August, 2006 to Present

	VB25		VB35	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	18-1/4" (46,3 cm)	19-1/4" (48,8 cm)	19-1/2" (49,5 cm)	21-1/4" (53,1 cm)
height	37-3/4" (95,9 cm)	47" (119,4 cm)	43-1/4" (109,9 cm)	59-1/2" (151,0 cm)
depth	20" (50,7 cm)	23-1/4" (59,1 cm)	23-3/4" (60,2 cm)	27-3/4" (70,5 cm)
Weight	254 lbs (115,2 kg)	287 lbs (130,1 kg)	353 lbs (160,0 kg)	406 lbs (184,1 kg)
Electrical	**3 Phase, 208-230 VAC, 60Hz**		**3 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 13A		approximately 14A	
fuse size	20A maximum		20A maximum	
breaker type	HACR or regular breaker		HACR or regular breaker	
Compressor	1.8 hp semi-hermetic			
Drive Motor	2.7 hp			
Air Flow	Air cooled units require 20" (50,7 cm) air space at back		Air cooled units require 12" (30,5 cm) air space at back	
Plumbing Fittings	N/A		Water cooled units require 3/4" N.P.T. water and drain fittings.	
Cylinder Capacity	2.5 gallon (9,47 liters)		3.75 gallon (14,20 liters)	
Liquid Mix Per Batch	2-4 quarts		3-6 quarts	
Working Cycle	10-20 minutes		8-12 minutes	
Production Capacity	6.25 GPH (23,66 liters)		8.25 GPH (31,24 liters)	

	VB25
Refrigerant	R-404A
Charge	42.3 oz
Suction Pressure (at 77°F ambient)	30 psig at -4°F to 16 psig at -20°F
Discharge Pressure	247 psig at 104°F to 319 psig at 122°F

	VB35
Refrigerant	R-404A
Charge	63.5 oz
Suction Pressure (at 77°F ambient)	15 psig at -22°F to 6 psig at -38°F
Discharge Pressure	247 psig at 104°F to 319 psig at 122°F

VB60 / VB80

Manufactured from 2001 to Present

	VB60		VB80	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	19-1/2" (49,5 cm)	22" (55,8 cm)	20" (50,7 cm)	22" (55,8 cm)
height	43-1/4" (109,9 cm)	60" (152,4 cm)	45-1/2" (115,5 cm)	60-1/4" (153,0 cm)
depth	31" (78,7 cm)	35" (88,9 cm)	23-3/4" (60,2 cm)	30-3/4" (78,0 cm)
Weight	459 lbs (208,1 kg)	613 lbs (278,1 kg)	617 lbs (279,8 kg)	662 lbs (300,3 kg)
Electrical	**3 Phase, 208-230 VAC, 60Hz**		**3 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 21A		approximately 40A	
fuse size	30A maximum		50A maximum	
breaker type	HACR or regular breaker		HACR or regular breaker	
Compressor	3.5 hp semi-hermetic		5 hp semi-hermetic	
Drive Motor	5.44 hp		6.4 hp	
Air Flow	Air cooled units require 12" (30,5 cm) air space at back		N/A	
Plumbing Fittings	Water cooled units require 3/4" N.P.T. water and drain fittings.			
Cylinder Capacity	6 gallon (22,72 liters)		7.5 gallon (28,40 liters)	
Liquid Mix Per Batch	4-8 quarts		7-12 quarts	
Working Cycle	8-12 minutes		8-12 minutes	
Production Capacity	13.25 GPH (50,17 liters)		18.5 GPH (70,05 liters)	

	VB60
Refrigerant	R-404A
Charge	116.4 oz
Suction Pressure (at 77°F ambient)	15 psig at -22°F to 9 psig at -32°F
Discharge Pressure	249 psig at 104°F to 319 psig at 122°F

	VB80
Refrigerant	R-404A
Charge	88.2 oz
Suction Pressure (at 77°F ambient)	10 psig at -29°F to 3 psig at -44°F
Discharge Pressure	203 psig at 90°F

VB90 / VB120

Manufactured from August, 2006 to Present

	VB90		VB120	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	20" (50,7 cm)	22" (55,8 cm)	21-3/4" (55,2 cm)	24" (60,1 cm)
height	45-1/2" (115,5 cm)	60-1/4" (153,0 cm)	47-1/4" (120,0 cm)	62-1/4" (158,0 cm)
depth	27-3/4" (70,5 cm)	30-3/4" (78,0 cm)	30-3/4" (78,0 cm)	34-1/2" (87,5 cm)
Weight	628 lbs (284,8 kg)	681 lbs (308,8 kg)	814 lbs (369,1 kg)	864 lbs (391,8 kg)
Electrical	**3 Phase, 208-230 VAC, 60Hz**		**3 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 33A		approximately 48A	
fuse size	50A maximum		60A maximum	
breaker type	HACR or regular breaker		HACR circuit breaker	
Compressor	Two - 3.6 hp semi-hermetic		Two - 5 hp semi-hermetic	
Drive Motor	6.4 hp		9.1 hp	
Plumbing Fittings	Water cooled units require 3/4" N.P.T. water and drain fittings.			
Cylinder Capacity	7.5 gallon (28,40 liters)		11.25 gallon (42,60 liters)	
Liquid Mix Per Batch	7-12 quarts		5-19 quarts	
Working Cycle	6-12 minutes		5-12 minutes	
Production Capacity	21.1 GPH (79,89 liters)		31.7 GPH (120,02 liters)	

	VB90
Refrigerant	R-404A
Charge	67 oz
Suction Pressure (at 77°F ambient)	10 psig at -29°F to 3 psig at -44°F
Discharge Pressure	203 psig at 90°F

	VB120
Refrigerant	R-404A
Charge	88.2 oz
Suction Pressure (at 77°F ambient)	10 psig at -29°F to 3 psig at -44°F
Discharge Pressure	203 psig at 90°F

CW5

Manufactured from 2001 to Present

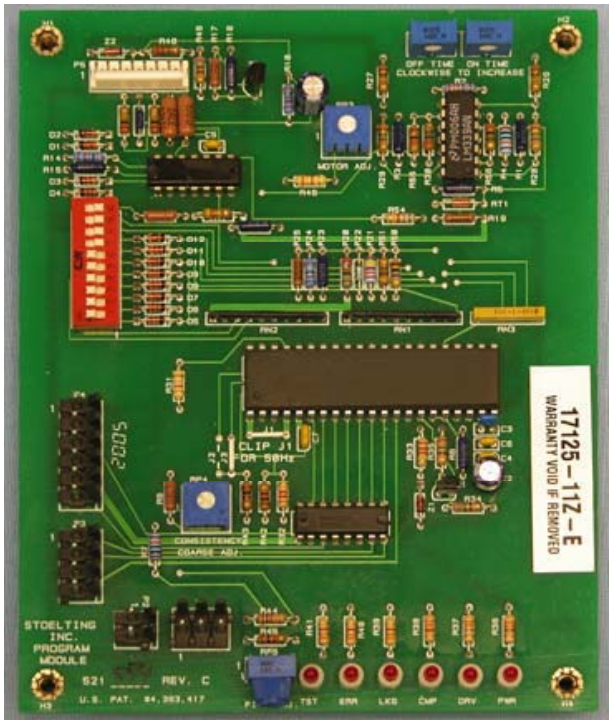
	CW5	
Dimensions	**Dispenser**	**with crate**
width	10" (25,3 cm)	13" (33,0 cm)
height	18" (45,7 cm)	21" (53,2 cm)
depth	18-1/2" (46,1 cm)	21" (53,2 cm)
Weight	70 lbs (31,8 kg)	75 lbs (34,0 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 8A	
fuse size	10A maximum	
breaker type	HACR or regular	
Compressor	1/8 hp hermetic	
Drive Motor	1/4 hp	
Air Flow	Air cooled units require 8" (7,6 cm) air space at both sides and back	
Cylinder Capacity	1.32 gallon (5 liters)	
Production Capacity	26.4 GPH (100 liters)	

	CW5
Refrigerant	R-404A
Charge	3.5 oz
Suction Pressure (at 77°F ambient)	3 psig at -8°F to 2 psig at -13°F
Discharge Pressure	143 psig at 108°F to 149 psig at 113°F

Type 2 Control

The Type 2 control is a consistency control. A toroid on the power board senses increasing drive motor amperage as the product comes to consistency in the freezing cylinder. After a set period of time, the cycle starts again.

This control is installed in the 2111, 2131, and 4000 series freezers.



Cleaning Circuit

When the Clean-Off-On switch is in the Clean position, the contactor energizes the drive motor. The auger will turn for cleaning.

Initial Freeze Down

When the Clean-Off-On switch is moved to the On position, the initial freeze down begins.

A toroid on the Power Board monitors (senses) drive motor amperage and forwards this sensing data to the Program Module. Here it is changed to a Freezer On control signal. When the PUSH TO FREEZE button is pressed, or the spigot is opened, the Program Module electronic circuitry sends a Freezer On control signal to the Power Board relays.

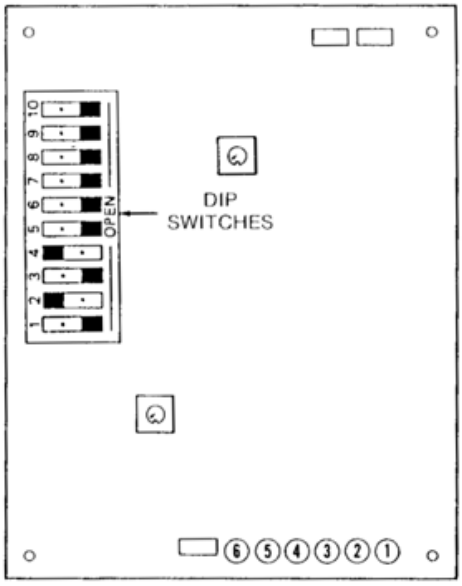
The Power Board relays will energize, allowing AC voltage to be applied to the coils of the drive motor and compressor contactors. These two contactors will then energize, allowing AC input current to flow through the contactors, to the drive motor, compressor, and condenser fan motor terminals. The freezer will then start operating. The third relay energizes the solenoid after 24 consecutive sleep cycles. The drive motor, compressor, and condenser fan motor will continue to operate until the product reaches consistency. Consistency level is set by the two consistency controls located on the Program Module.

When the product reaches consistency, the sensing signal from the Power Board tells the Program Module electronics to remove the Freezer On signal from the coils of the Power Board relays. These relays will then de-energize.

When the Power Board relays de-energize, AC input voltage is removed from the contactor coils. The drive motor will stop running first, and several seconds later the compressor and condenser fan motor will stop.

(Continued on page 44)

Type 2 Control



After initial freeze down, the freezer begins an off time period. The off time period is set by an Off Timer circuit on the Program Module.

Programmed Operation

Following the initial freeze down and off time period, the freezer is controlled by the DIP switch settings.

Each of the eight DIP switches represent a programmed cycle. The programmed cycle can be a freezing cycle or a sleep cycle. When a switch is in the closed position, a freezing cycle is active; when a switch is in the open position, a sleep cycle is active.

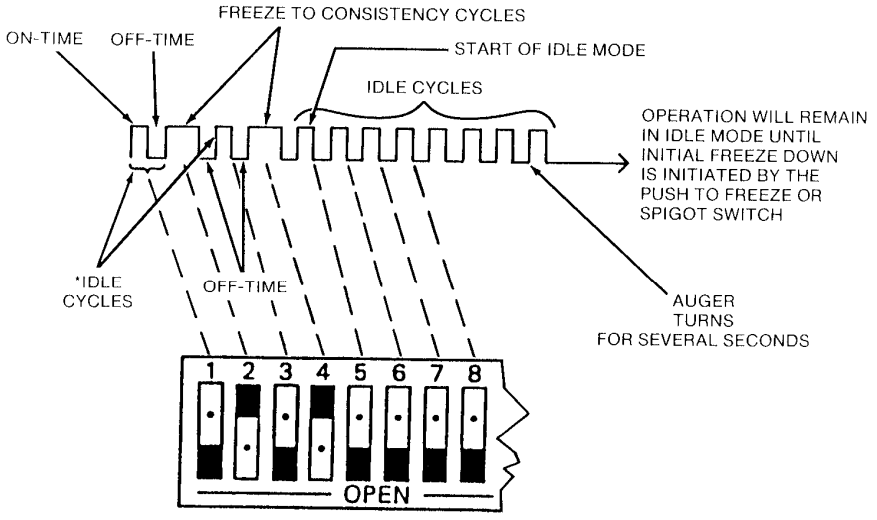
During a sleep cycle, the compressor is run by the timer circuits on the Program Module.

For the following example, the DIP switches are set in the positions shown in below.

Switch number 1 is open, meaning the freezer enters a sleep cycle. If the Off Time circuit was set for 10 minutes and the On Time circuit was set for 40 seconds, the idle cycle would be 10 minutes long and the compressor would run for 40 seconds during this idle period.

The freezer now begins cycle 2 operation. Switch number 2 is in the closed position, meaning that the unit

(Continued on page 45)



* - An 'Idle Cycle' has an 'off-time' and an 'on-time' period.

starts a freezing cycle. Freezer operation will be that of normal initial freeze down, except that the PUSH TO FREEZE button and the spigot do not have to be pressed or opened. The two spigot switches function only as a trigger to initiate an electronic circuit on the Program Module. The drive motor, compressor, and condenser fan motor operating times are controlled by consistency during a freeze cycle. After reaching consistency in cycle 2, the freezer will again enter the off time period, followed by cycle 3.

Switch number 3 is open, meaning the freezer is in a sleep cycle and will perform as explained for cycle 1.

Switch number 4 is closed, meaning the freezer is in a freezing cycle and will perform as explained for cycle 2.

Switches 5 through 8 are open, meaning that these four cycles are sleep cycles.

After the freezer has completed the last freezing cycle, it enters the sleep mode. In this example, the freezer would begin its sleep mode starting with cycle 5. After every eighth consecutive sleep cycle, the drive motor will operate and turn the auger for a few seconds. The compressor runs for every cycle.

After initial freeze down, any time the spigot is opened or the PUSH TO FREEZE button is pressed, circuit operation will start over again beginning with the initial freeze down.

Summary

Type Two Consistency Control freezers have three cycles of operation:

1. Initial freeze down where consistency and off time control freezer operation.
2. Freezing cycle where the freezer runs until set consistency is reached and then shuts down for a period of time set by an Off Time circuit.
3. Sleep cycle where freezer off time and compressor on time are controlled by timers only. On and off times are set by adjustment potentiometers on the Program Module.

Power Board

The Power Board has three functions:

Converts AC Input to 12VDC

The voltage is converted from AC supply voltage to 12VDC for the Program Module operation.

Senses Drive Motor Amperage

A toroid on the Power Board senses drive motor amperage and forwards the signal to the Program Module.

Controls Operation of Drive Motor, Compressor and Condenser Fan Motor

The relays on the Power Board receive the signal from the Program Module and allow AC input voltage to energize the contactors. The contactors energize the drive motor, compressor and condenser fan motor.

(Continued on page 46)

Type 2 Control

Program Module

Changes Energy Sensing Signal to Freezer On Signal

The energy sensing signal from the Power Board is changed into a Freezer On signal by the board's electronic circuitry. When the energy sensing signal reaches a certain value, the Program Module stops the drive motor and compressor by stopping the signal to the relays.

LED Indicators

The Program Module has six LED's:

1. PWR - When illuminated, the Program Module is receiving 12VDC from the Power Board.
2. DRV - When illuminated, the Freezer On signal is sent to the Power Board drive motor relay. AC input voltage is present at the drive motor contactor coil terminals.
3. CMP - When illuminated, the Freezer On signal is sent to the Power Board compressor relay. AC input voltage is present at the compressor contactor coil terminals.
4. LKG - When illuminated, product in the freezing cylinder has not reached consistency. When blinking, product is approaching consistency. When off, product is at consistency.

NOTE

The LKG is always lit except at the point of consistency. After consistency has been reached, the light will turn off for 12 seconds. After that, it will come back on and stay on.

5. ERR - Illuminates from a high torque or low torque error. The freezer will stop operating and the PUSH TO FREEZE button will continuously blink. Placing the Clean-Off-On switch in the Off position will cancel, but not correct, the error.

   A high torque error occurs when the product is at 120% of consistency for 15 seconds.

   a. Product too firm causing the drive motor to be overloaded when starting.
   b. Spigot open during freeze cycle causing freezer to run continuously.
   c. PUSH TO FREEZE or spigot switch malfunction in the open position.

   A low torque error occurs when the product does not reach 85% consistency within 15 minutes.

   a. Low mix or no mix in the freezing cylinder
   b. Control set too firm
   c. Old mix

6. TST - Illuminates for the test mode

Product Consistency Setting

The Coarse Adj. and Fine Adj. are factory set and should not be modified before examining other problem causes.

Freezer Off Time Setting

The Off Time setting determines the amount of time the freezer is off after initial freeze down, after each consistency cycle, and after each idle cycle.

(Continued on page 47)

Type 2 Control

Compressor On Time Setting

The On Time setting determines the amount of time the compressor will run during an idle cycle.

Ten Position Dip Switch

The first eight switches can be programmed to select freezer mode of operation. When a switch is in the open position, the freezer will be in idle mode and run on timers. When a switch is in the closed position, the freezer will be run until product comes to consistency.

Dip switch 9 is a repeat cycle switch. In the open position, the freezer will remain in the idle mode after it has completed the last consistency cycle. In the closed position, the freezer will repeat the programmed cycles and not enter the idle mode.

Dip Switch 10 is used for the test mode. In the closed position, neither the drive motor or compressor will operate. The test mode is used when adjusting the freezer off time and compressor on time potentiometers.

NOTE

Dip Switch 10 must be in the open position for normal operation.

Motor Adjustment

Refer to the freezer's Service Manual for details.

Type 3 Control

The Type 3 control is a temperature control.

This control is installed in gravity fed shake freezers.

Cleaning Circuit

When the Clean-Off-On switch is in the CLEAN position, 24 volts AC is applied to the drive motor contactor coil. The contactor will energize and the drive motor will operate. The auger will turn for cleaning.

Freezer Operation

The AC input voltage is stepped down by the input transformer to 24 volts AC. This voltage is used to operate the Temperature Control board's solid state circuitry.

Product temperature in the barrel is monitored by the temperature sensor probe. The thermistor inside the probe changes resistance as the barrel temperature changes. This resistance is always being compared to the resistance value set by the temperature adjustment potentiometers located on the Temperature Control Board.

When temperature sensor resistance is lower than the resistance value set by the temperature adjustment potentiometers, the Temperature Control Board circuitry will tell the drive motor and compressor contactors to energize, thus allowing the drive motor, compressor, and condenser fan motor to operate.

When the temperature sensor resistance equals the resistance value set by the temperature adjustment potentiometers, the Temperature Control Board tells the compressor contactor and, via the time delay circuit, the motor contactor to de-energize, thereby turning off the drive motor, compressor, and condenser fan motor.

Anytime the temperature potentiometers are reset, the resistance of the sensor must change to satisfy the temperature control. For example, if the product temperature is too warm (product consistency too soft) and the temperature adjustment is changed to make the product colder, the Temperature Control Board will recognize this difference in resistance values between the sensor and the temperature adjustment, and keep the compressor and drive motor contactors energized until the temperature sensor resistance matches the temperature adjustment.

Components

Input Transformer Steps Down AC Input Voltage to 24 Volts AC

The input transformer reduces the AC input voltage to 24 VAC needed for the operation of the Temperature Control Board circuits.

Temperature Sensor Probes Senses Product Temperature in the Barrel

The internal resistance of the sensor probe varies with the temperature of the product in the barrel.

Time Delay

The solid state circuitry of the Time Delay circuit operates to open the time delay contacts several seconds

(Continued on page 49)

after the current signal is removed at terminal 5.

Temperature Control Board

1. Course Adj. and Fine Adj. Set Product Temperature

   The two Temperature adjustment potentiometers, Course Adj. and Fine Adj., are adjusted to keep the product in the barrel at desired temperature, and in turn, desired consistency.

2. Controls Compressor Run Time After the Temperature Control has been satisfied.

   The Forced Refrigeration On Time (2) potentiometer is factory set to control compressor and drive motor run time, after set product temperature has been reached. The compressor will turn off but the drive motor will continue running until the time delay circuit (C) has timed out.

Liquid Level Control

(Not available on all units)

Monitors the Amount of Mix in the Hopper

When the mix level goes below the lower mix probe in the hopper, an electronic signal is sent to the liquid level control board and the Mix Low light illuminates.

Controls Optional Fill Pump

An optional fill pump can be wired directly across the Mix Low light. The Mix Low light is controlled by a relay on the Liquid Level Control Board.

High and Low Sensor Probes (Used with Liquid Level Control)

The High and Low Sensor Probes interact directly with the Liquid Level Control Board to let the operator know when there is low mix in the barrel.

Type 4 Control

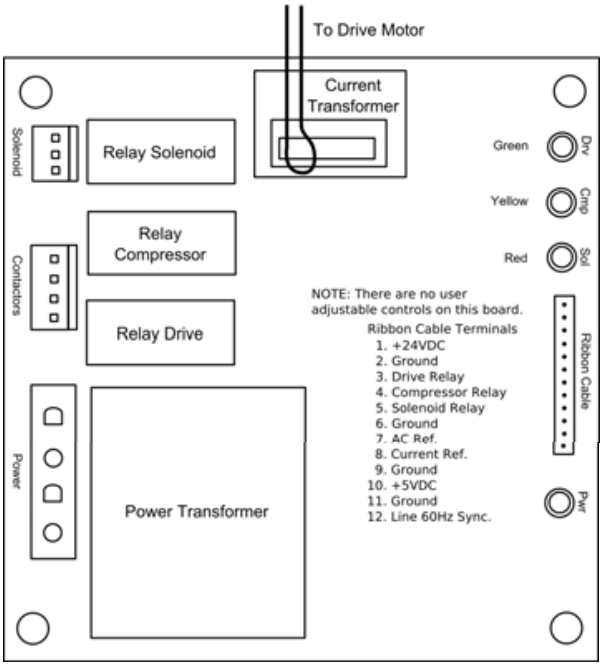
The Type 4 control has been installed in many freezers including: F111, E/F131, O112 and O212.

The control system monitors the firmness of the product in the freezing cylinder. As the product freezes, the drive motor amperage increases. The program module monitors the amperage and shuts off the drive motor when the programmed value is reached. The freezer will remain off until the temperature rises to the preset looking temperature (freezing cylinder temperature).

The control system, when in the standby mode, monitors the product temperature in the freezing cylinder. When the product temperature increases to the preset value, a freezing cycle starts. When the temperature control is satisfied, the compressor will stop, and approximately 10 seconds later, the drive motor will stop.

The control also contains a hopper temperature control (separate hopper refrigeration system only) and liquid level indicator to monitor the mix temperature and level in the hopper. When servicing a freezer in the consistency mode, keep in mind the control system monitors product consistency.

To minimize the beating of product in the freezing cylinder, the program module will switch to the idle mode after the preset number of consistency cycles are complete. In the idle mode, the control is programmed to maintain a preset hopper and barrel temperature. In this idle mode, a servable consistency will not be held.



Type 4 Power Board

(Continued on page 51)

Power Board

Drive motor energy usage is sensed by the power board. The power board also supplies energy to the program module and sends electronic signals associated with the drive motor sensing. The 115 or 230/12 volt transformer and associated circuitry is used to supply DC voltages to operate the program module. There are two relays to transfer power to the compressor and drive motor contactors. The power board has a third relay; it powers the liquid line solenoid valve. The relay will close after 2 hours of red light idle causing the solenoid to open. There are four LED's to monitor the board's operation:

1. PWR indicates power to the board.
2. SOL indicates power to the solenoid.
3. CMP indicates power to the compressor.
4. DRV indicates power to the drive motor.

Program Module

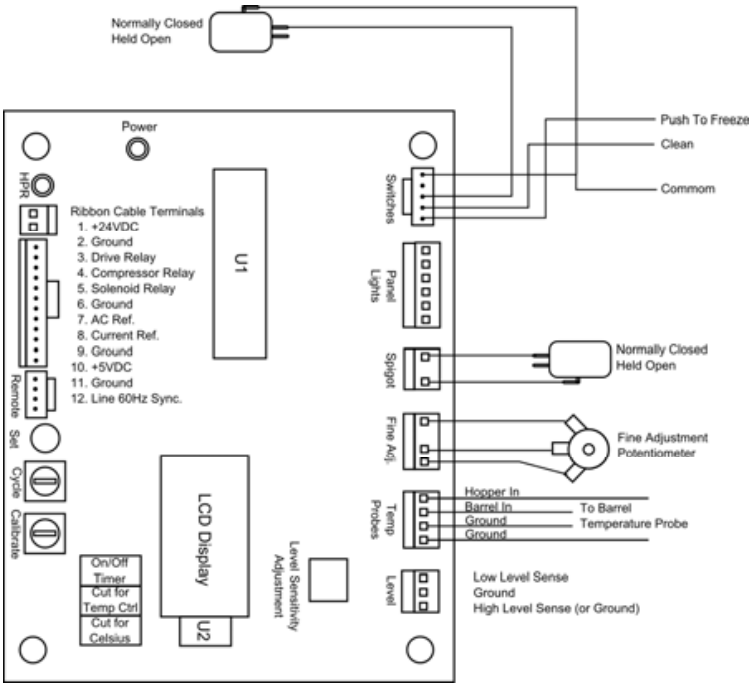
The program module is a multifunction control. It can control product consistency or product temperature in the freezing cylinder, mix temperature in the hopper, and indicate mix level in the hopper. The board can be programmed to control the functions of various freezers producing many different products. To properly program the board, it is necessary to understand the purpose of each indicator light, switch, potentiometer, jumper, and the LCD.

A. Indicator Lights

1. The Power On light indicates the program module is receiving DC power from the power board.
2. The HPR light indicates power is available to control a separate refrigeration system.

B. LCD

1. In the calibration mode, abbreviated word indicators will be displayed indicating the control function and set points being calibrated.



Type 4 Control Board

(Continued on page 52)

Type 4 Control

a. TM - On Time

b. STB - Stand-By-Product Temperature

c. CRS - Auger Drive Motor Current (amperage)

d. MTR - Motor Slope Adjustment

e. SRV - Product Temperature

f. HPR - Hopper Temperature

g. LKG - Temperature set point in ready (RDY) mode.

2. In the operating mode, an abbreviated work indicator will be displayed indicating the operating function.

   a. DRV - Drive Motor

   b. CMP - Compressor

   c. LKG - Consistency

   d. CLN - Clean

3. When the cycle switch is placed in the 0 position, the control will go through a self-test sequence and the results will be displayed.

   a. OK - Passed all Checks

   b. ERR - Error Condition

4. Error condition code display. The error condition code directs you to the location of the malfunction.

   a. 01 Program Board

   b. 02 Power Board

   c. 03 Low Torque Error

   d. 04 Clean Error

   e. 05 Barrel Sensor

   f. 06 Hopper Sensor

   g. 07 Drive Motor

C. Board Mounted Selectors

There are three diodes which, when removed from the circuit, cause changes in the control logic.

1. On/Off timers. This diode is removed from the circuit for those soft serve freezers without sensors for barrel or hopper temperature. In the operating consistency mode, the freezer will start at the end of the set off time. The freezer will remain on until brought to consistency. After the selected number of operating cycles, the control will operate in idle mode strictly by On/Off timing. If the diode is not removed from the circuit, the On/Off timers function only during the transition from normal operating set point to Idle (STB) temperature set point.

2. Celsius Display Select. Selection for display is Fahrenheit and when removed from the circuit is Celsius.

3. Consistency/Temperature Mode Select. A removable diode is provided to change the control from the basic function of a consistency control to a temperature control.

D. Calibration Function

The Cycle Mode Switch programs the number of cycles before the freezer enters the idle mode (1-9). The calibration function is activated by placing the Cycle Mode Switch in the "0" position. Place the On/Off switch in the On position. The On Board pushbutton switch (SET) is used to advance through the steps. The Default Settings chart on page 66 indi-

(Continued on page 53)

cate the steps in calibrating the control.

E. Control Calibration

Values for your freezer can be found inside the decorative header panel or in the information packet behind the left side panel.

F. Error Conditions

When the cycle rotary switch is rotated to the Self-Test position (calibrate “0”), the control will be in the test mode. All outputs are off. The control will go through a self-test sequence and then “OK” will come on indicating that the control functions tested are correct. These indicators will remain on until the rotary switch is turned. Failure of any function will cause “ERR” to be displayed. The Push-To-Freeze light will flash the same number of times as the error code numeral, then pause and repeat. Any error causing condition must be corrected, then the power turned off, and back to on for reset. The Self-Test errors include the following:

01 ERR	Program Board
02 ERR	Power Board
03 ERR	Low Torque Error
04 ERR	Clean Error
05 ERR	Barrel Sensor
06 ERR	Hopper Sensor
07 ERR	Drive Motor

NOTE

Error codes can be overridden by holding the clean switch on while power is applied, except for the clean error. Errors must be corrected to resume normal operation.

NOTE

Last error code can be read on display log by pushing the Set button while in run mode.

NOTE

If the freezer has been left in the Clean mode for more than 30 minutes or if the Clean button has been activated 3 times within 10 seconds, the freezer will go into a Clean error. The Push To Freeze light will flash and the clean function will be disabled. To clear this error, leave the freezer power on for at least 10 minutes. Then turn power off and back on. If power is turned off before 10 minutes has elapsed, the clean error timer will restart.

Resetting The Type Four Controller to Default Settings

1. Turn machine off using the toggle switch on the front panel of machine.
2. Locate the program module board.
3. Make note of the current numeric setting of the Cycle mode switch. You will need to reset the switch to this setting after returning all 10 programmed values to factory settings.
4. Turn Cycle mode switch to zero.

(Continued on page 54)

5. Press and hold the Set switch (gray or white pushbutton switch) while turning machine on using the on/off toggle switch located on front panel of machine. Continue to hold the Set button for five seconds, then release. The LCD readout should now display 10SEC.
6. If the LCD display on the program module board does not read 10SEC, repeat steps 1 thru 5.
7. After the program module board has been reset to the default settings, you will need to reenter the 10 programmed values specified on the set-up sheet located in a pocket on the inner left side panel or inner top front panel of machine.

Returning the 10 Programmed Values to Factory Settings

1. Turn machine off using the toggle switch on the front panel of machine.
2. Turn Cycle mode switch to zero.
3. Turn machine back on.
4. Rotate the Calibrate switch clockwise or counterclockwise until the number displayed in the LCD readout matches the number on the set-up sheet.
5. Press the Set switch to save the setting and move on to the next programmed number.
6. Repeat steps four and five until all ten settings match the corresponding number on the set-up sheet.
7. Turn machine off and turn Cycle mode switch back to setting noted in step 3.
8. Turn machine on. The machine has now been reset to original factory settings and is ready to use.

G. Switches/Lights

NOTE

All models do not have the Hold Ready Switch/Light or the Mix Low Switch/Light.

1. Spigot Switch. The Spigot Switch is a normally closed held open switch. When the spigot is opened, the switch will close starting the freezer.
2. Push-To-Freeze Switch and Light. The Push-To-Freeze switch is a normally open snap switch. When the switch is depressed, the switch will close, starting the freezer. The red Push-To-Freeze light will be illuminated whenever the product is not at consistency. The red light, when flashing, indicates an error condition. The green Push-To-Freeze light will illuminate when the product is ready to serve and flashes just prior to reaching consistency.
3. Hold Ready Switch and Light. The Hold Ready Switch is a normally open momentary switch. When the switch is depressed, and held for 5 seconds the switch will close, placing the freezer in a continuous ready condition. The Hold Ready light will illuminate. To allow the automatic idle mode, push the Hold Ready Switch again, and hold for 5 seconds. After the preset number of consistency cycles, the freezer will go into the idle mode.

(Continued on page 55)

4. Clean Switch and Light. The Clean switch is a normally open snap switch. When the Clean Switch is depressed, only the auger will run and the red Clean light will illuminate. To stop the auger, push the Clean switch again.

NOTE

If the Clean switch is pressed three times within 10 seconds, the Push-To-Freeze Light on the panel will flash and this function will be disabled for 10 minutes.

5. Mix Low Light. The Mix Low Light will illuminate when the mix level is below the probe. To cancel the light, fill the hopper to above the probe.

6. Fine Control Adjust. When the control is in the consistency mode, the Fine Control Adj. has a range of 1.5 amps from the coarse control setting. When the control is in the temperature mode, the Fine Control Adj. has a range of 4°F from the coarse control setting.

H. Freezer Operation

1. Consistency Mode. When the Off/On Switch is placed in the On position, the red Push-To-Freeze light will illuminate and the freezer will run in the idle mode. When the Push-To-Freeze Switch is depressed, the freezer will run until it reaches consistency, then after the preset On Time, the green Ready Light will illuminate and the freezer will stop. When the spigot is opened, the drive will start immediately and the compressor will start 3-4 seconds later. When the spigot is closed, the freezer will run until it reaches consistency. It will stop after the preset On Time.

   The freezing cylinder temperature is monitored. Whenever the temperature increases above the LKG temperature, the freezer will start and the product brought back to consistency. If no product is dispensed and the Push-To-Freeze switch is not depressed, the freezer will enter the idle mode after the preset number of consistency cycles. When in the idle mode, the freezer will cycle on the preset On and Off timers until the standby LKG temperature is reached. From that point on it will cycle on temperature. Whenever a product is dispensed or the Push-To-Freeze switch is depressed, the control will return to the freeze down cycle.

NOTE

The drive will run for 10 seconds every 5 minutes to circulate product. A normal on cycle will reset the 5 minute timer.

   If the Hold Ready Switch is depressed and held for 5 seconds, the green light will illuminate and the freezer will not enter the idle mode. It will remain in the consistency mode. If the switch is depressed again and held for 5 seconds, the green Hold light will go off and the freezer will be allowed to enter the idle mode after the programmed number of consistency cycles.

2. Temperature Mode. To start the freezer, place the Off/On switch in the ON position. Press the Push-To-Freeze switch to start the freezer. When the drive

(Continued on page 56)

Type 4 Control

starts, release the Push-To-Freeze switch. The freezer will run until the preset barrel temperature is reached, then after the preset On Time stop and the green ready light will illuminate. When the barrel temperature rises to the LKG temperature, the freezer will start and run until the preset barrel temperature is reached, then after the preset On Time, stop. When the spigot is opened, the drive will start immediately and the compressor will start 3-4 seconds later. When the spigot is closed, the freezer will run until it reaches temperature. It will stop after the preset On Time.

Spigot Switch

The spigot switch will automatically actuate the auger drive and refrigeration systems when the spigot is opened to dispense product. When the spigot is closed, the drive motor and compressor will remain on until the product in the barrel reaches proper consistency.

Contactors

The contactors are mounted in the electrical box located at the back of the freezer. Remove the back panel to access.

The control modules trigger the contactors. An electronic signal tells the relays when to operate the contactor for the compressor and condenser fan. A separate signal is used to control the drive motor contactor. The signals to the contactors are on a 2-3 second delay so the drive motor will always start and stop before the compressor and condenser fan. By staggering the stopping and starting of the drive motor, maximum starting torque is available and voltage spikes are reduced. The contactors are electronically isolated from the program module. This feature is very important is case of an electrical short or component failure.

°F	Resistance
-22	176950
-20	165200
-18	154300
-16	144200
-14	134825
-12	126125
-10	118050
-8	110550
-6	103550
-4	97075
-2	91025
0	85400
2	80150
4	75275
6	70725
8	66475
10	62500
12	58800
14	55325
16	52100
18	49075
20	46250
22	43600
24	41125
26	38800
28	36625
30	34575
32	32675
34	30875
36	29175
38	27600

°F	Resistance
40	26100
42	24725
44	23400
46	22175
48	21000
50	19900
52	18875
54	17900
56	17000
58	16125
60	15325
62	14550
64	13825
66	13150
68	12500
70	11875
72	11300
74	10750
76	10250
78	9750
80	9300
82	8850
84	8450
86	8050
88	7675
90	7325
92	7000
94	6675
96	6375
98	6100
100	5825

Sensor Resistance to Temperature

Default Settings

Push Button Action	Display Digit	Display Function	Display Word	Notes
NOTE: Push-button actuation enters "read out" and steps ahead to the next adiustment	OK			
Force Freeze §	10	SEC	TM	Adjust 3 - 30 seconds. Calibrate is on SW2
STB (idle) On Time	10		TM & STB	Adjust 10 - 90 seconds.
STB (idle) Off Time	20	SEC	TM & STB & SEC	Adjust 18 - 199 seconds. Reading is 1/10th actual time
Amps *	3.6	AMP	CRS	Adjust 2.0 - 17.0 amps. Fine pot must be at mid-range. Display is total (Coarse + Fine)
Serve Temp **	10	°F	SRV	Adjust 5 - 35ºF. Fine pot must be at mid-range. Display is total (Serve + Fine)
STB (idle) Temperature	24	°F	STB	Adjust 24 - 59ºF.
STB (idle) Temperature Differential	1	°F	STB	Adjust 1 - 5ºF.
Motor Slope * §§	0.8		MTR	Adjust 0.5 - 3.5 amps.
Hopper Temperature ***	25	°F	HPR	Adjust 25 - 45ºF.
Barrel Temperature ****	19	°F	LKG	Adjust 1 - 45ºF.
Push-button actuation returns to first step				Return to first step for review

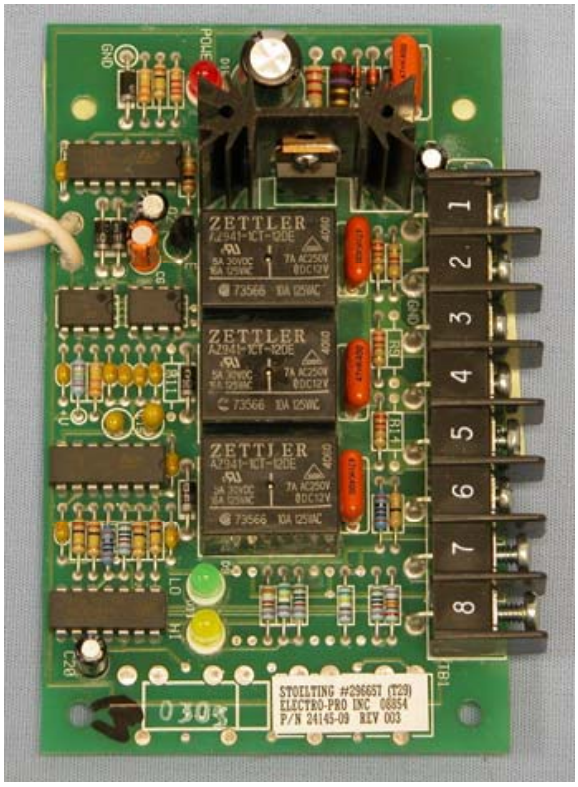
If "Error" appears, refer to the error condition for more details

* Not used for temperature (shake) control
** Not used for consistency (soft serve) control
*** Separate hopper refrigeration system only
**** If set for temperature (shake) control, this is rise in barrel temperature above the serve temperature
§ Forced Freeze On Time: Minimum run time activated by opening the spigot or pressing the Push To Freeze button
§§ Motor Slope: Rate of amperage change at cutout with respect to rate of line voltage change

Challenger Control

The Challenger control is a temperature control.

This control is installed in Challenger freezers.



Cleaning Circuit

When the Clean-Off-On switch is in the Clean position and the Night-Service switch is in the Serve position, 24VAC is applied to the drive motor contactor coil. The contactor will energize and the drive motor will operate. The auger will turn for cleaning.

Freezer Operation

Freezer operation is controlled by the temperature of the refrigerant in the suction line. A temperature sensor clamped to the suction line is continually monitoring refrigerant temperature. The resistance of the sensor changes as the suction line temperature changes. This resistance is compared to the value set on the temperature control board.

The input transformer steps down input voltage to 24VAC. This voltage is used to operate the temperature control board's circuitry and the drive motor and compressor contactors.

When the Clean-Off-On switch is in the On position and the Night-Service switch is in the Serve position, 24VAC is applied to the drive motor contactor coil terminals and terminals L1 and L2 on the temperature control board. The drive motor contactor will energize and the timer circuit on the temperature control board will begin its timing operation. The drive motor will start immediately, the compressor and condenser fan start after a three-second delay.

A timer circuit and two sensor relays (HI and LOW) control the compressor. The freezer “on” signal from the temperature circuit will tell the HI relay to energize. Several seconds later, the time delay circuit will close the time delay contacts. The compressor contactor will energize and start the compressor and condenser fan.

As product in the freezing cylinder cools, so does the temperature of refrigerant in the suction line, causing the HI relay to de-energize. Shortly before the HI relay de-energizes, the freezer “on” signal from the sensor tells the temperature control circuit to energize the LOW relay.

(Continued on page 59)

When the refrigerant has cooled to the set temperature, the sensor will tell the temperature control circuit to de-energize the LOW relay. The drive motor and compressor contactors will immediately de-energize. The drive motor, compressor, and condenser fan stop.

This completes the freeze down operation. The HI relay will not be in the circuit again while operating in the Serve mode; it will be active, however, in the Night mode to control freezer startup.

After freeze down in Serve mode, the sensor and LOW relay control operation of the drive motor, compressor, and condenser fan. Freezer startup will be the same as just described for freeze down, except that the HI relay never energizes.

When the Night-Service switch is in the Night position, the HI relay controls freezer operation. In the Night mode, the night temperature potentiometer sets sensor circuit resistance. This setting is adjusted to a higher temperature than the serve potentiometer. When refrigerant temperature increases to the set value, the HI relay will energize the contactors. When the established dropout temperature has been reached, the HI relay will de-energize, causing the drive motor, compressor, and condenser fan to stop operating.

Any time the temperature adjustment potentiometers (Night and Serve) are reset, the resistance of the sensor circuit changes. For example, if the refrigerant temperature is too warm (product too soft) and the temperature adjustment (sensor resistance) is changed to make the refrigerant colder, the temperature control circuit will function to allow freezer operation until the new refrigerant temperature is reached.

After a spigot is opened when the Night-Serve switch is in the Serve position and the Forced Refrigeration Switch is in the Off position, the drive motor and refrigeration systems continue to operate until the temperature control is satisfied. When the temperature control is satisfied, the LOW relay contact opens, but the forced refrigeration time delay contact remains closed until the five-second minimum run time has expired.

When the Forced Refrigeration Switch is in the On position, the delay is increased from five seconds to a thirty-second delay.

Temperature Control Components

Input Transformer

Steps down input voltage to 24VAC for the operation of the temperature control board circuits.

Temperature Sensor

The Temperature Sensor senses refrigerant temperature in the suction line. The internal resistance of the sensor varies with the temperature of the refrigerant in the suction line. Refrigerant temperature in the suction line and product temperature in the freezing cylinder are directly proportional.

Forced Refrigeration Switch

Delays freezer shut down following dispensing the product. The Forced

(Continued on page 60)

Challenger Control

Refrigeration Switch increases the time delay to thirty seconds after the spigot is closed and the temperature control has been satisfied. This keeps the product at serving temperature during periods of heavy dispensing.

Night-Service Switch

The Night-Service switch keeps product from spoiling during the night by lowering refrigerant temperature in the suction line.

Temperature Control Board

The Temperature Control Board controls freezer operation at a specific temperature. The board sets the refrigerant temperature needed to keep the product at the correct temperature. If the product is not at the correct temperature, the sensor potentiometers, Serve and Night, can be adjusted until the correct product serving temperature is achieved. The serve potentiometer is active when the Night-Service switch is in the Serve position. The night potentiometer is active when the switch is in the Night position.

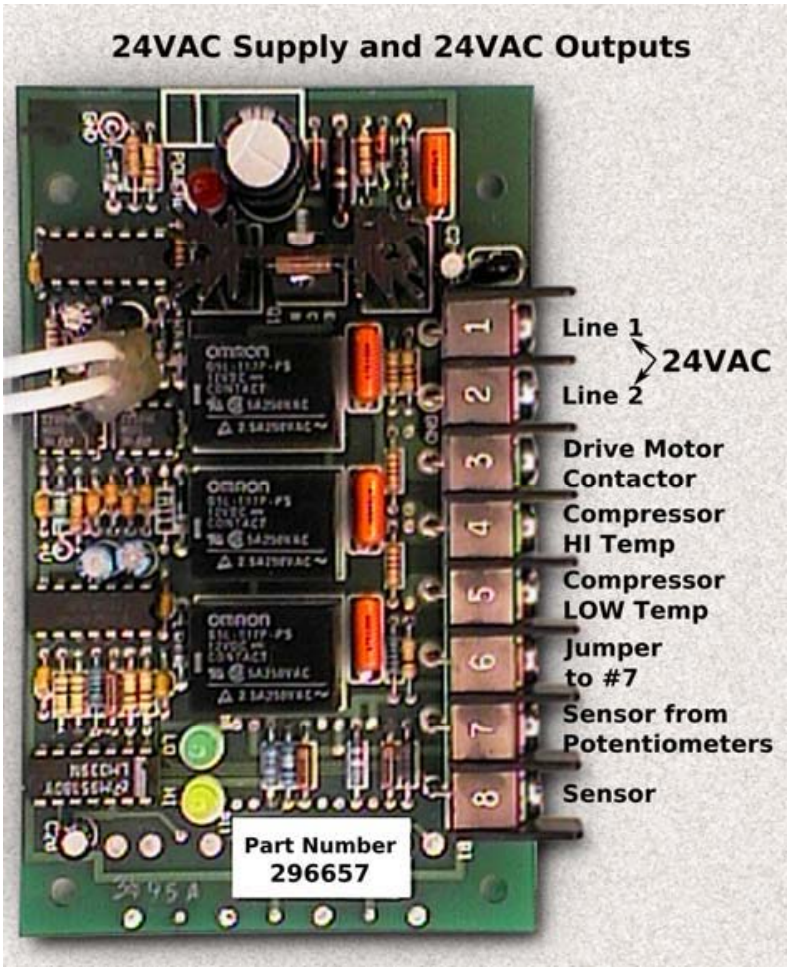
Contactors

There are two contactors in each freezer. The Temperature Control Board controls the drive motor contactor and compressor contactor. The compressor contactor also starts the condenser fan motor.

Troubleshooting

Perform the following to make sure the control board is being powered:

(Continued on page 61)



1. Remove front header panel.
2. Locate the control board and verify the red PWR light is lit.
3. Check for voltages across the following terminals. Voltage readings should be 24VAC.
   a. Terminals 1 & 2
   b. Terminals 2 & 3
   c. Terminals 2 & 4 or 2 & 5 (depending on the freezer mode)

Test the temperature sensor using the following instructions:

1. Disconnect the sensor leads from Terminals 7 & 8.
2. Check each lead of the sensor to ground for continuity. If continuity is found, replace the sensor.
3. Check the resistance of the sensor. Place a thermocouple on the suction line at the exit of the freezing cylinder.
4. Compare temperature and sensor resistance with the table as reference.
5. If measured value does not coincide with a value on the table (±5%), replace the sensor.

°F	Resistance
-40	17975
-38	16875
-36	15825
-34	14850
-32	13950
-30	13125
-28	12350
-26	11600
-24	10925
-22	10275
-20	9700
-18	9125
-16	8600
-14	8125
-12	7650
-10	7225
-8	6825
-6	6450
-4	6100
-2	5775
0	5450
2	5175
4	4875
6	4625
8	4375
10	4150
12	3950
14	3725
16	3550
18	3375
20	3200
22	3025
24	2875
26	2750
28	2600
30	2475

°F	Resistance
32	2350
34	2250
36	2150
38	2025
40	1950
42	1850
44	1775
46	1675
48	1600
50	1525
52	1450
54	1400
56	1325
58	1275
60	1225
62	1175
64	1100
66	1075
68	1025
70	975
72	925
74	900
76	850
78	825
80	775
82	750
84	725
86	700
88	675
90	650
92	625
94	600
96	575
98	550
100	525

Sensor Resistance to Temperature

IntelliTec Control

The IntelliTec control is Stoelting's newest and most advanced controller. It combines all of the best features of previous controllers, with advanced sensing and troubleshooting capabilities.

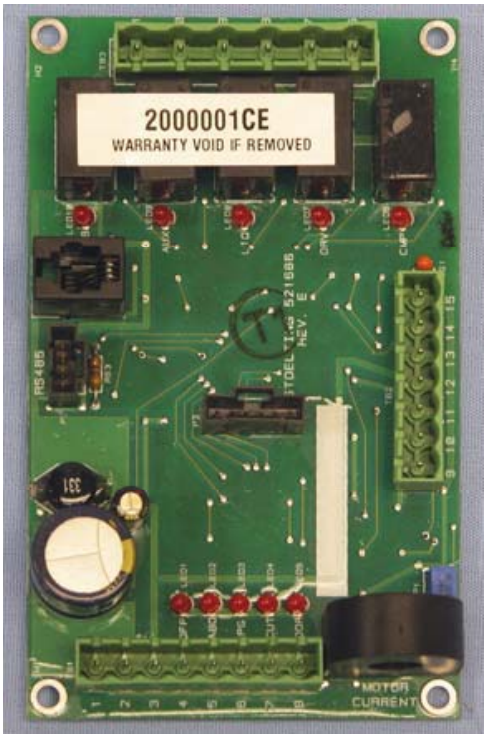
The IntelliTec control is used in the F111, E/F131, SF144, F431, and SU412. This control is being installed in most new models and will be taking the place of the Type 4 control.

Modes of Normal Operation

The IntelliTec control has the following operational modes.

NOTE:

The preset amounts, times, and temperatures listed below are references to actual settings on the IntelliTec control. Refer to the freezer's setting specification sheet for details on each setting.



A. Initial status

When the Main Freezer Power and Freezing Cylinder switches (if present) are placed in the On position, the freezer will start in the "Sleep 1 Mode". When the PUSH TO FREEZE button is pressed the control will move to the "Serve Mode".

B. Serve Mode

When the PUSH TO FREEZE button is pressed or a spigot handle is pulled, the "Serve Mode" begins. The drive motor starts, and after a 3 second delay, the compressor starts. When the control senses the product is near consistency, the display will read "SERVE" and product can be served from the freezer.

When the temperature in the freezing barrel increases to a preset amount (Cut In T), a 3-second drive motor pre-stir analyzes product consistency. If product requires a freezing cycle, the control will start the cycle.

(Continued on page 63)

The freezer will remain in “Serve Mode” until the cycle count setting is attained, then the control will move into the "Standby Mode".

C. Standby Mode

In "Standby Mode", the freezing cycle is based on preset timers (On Time and Off Time). During “Standby Mode”, the stir cycle runs based on preset, timed intervals (Stir On and Stir Off).

The "Standby Mode" lasts for a preset time (Stb Time). Once this time has been reached without user interruption, the control moves into the "Sleep 1 Mode".

D. Sleep 1 Mode

During the "Sleep 1 Mode", the stir cycle is handled by preset timers (Sl1DrvOn and Sl1DrOff), Although the product temperature never increases above 40°F, the product

(Continued on page 64)

IntelliTec Control Setting Specifications

Basic Menu	DISPLAY	VALUE	MODE	DEFINITION
	CutOut	amps	Serve	Amp draw setting for cut out
	Cut In T	°F	Serve	Temperature setting for cut in
	Cycles	count	Serve	Freezing cycles before going into Standby Mode
	Stir On	seconds	Serve	Stir-only on time
	Stir Off	seconds	Serve	Stir-only off time

Advanced Menu	DISPLAY	VALUE	MODE	DEFINITION
	On Time	seconds	Standby	Freezing cycle "on” time (runs on timers only)
	Off Time	seconds	Standby	Freezing cycle “off” time
	Stb Time	minutes	Standby	Total time in mode
	Sl1DrvOn	seconds	Sleep 1	Drive motor “on” timer
	Sl1DrOff	seconds	Sleep 1	Drive motor “off” timer
	Sl2CutIn	°F	Sleep 2	Cut in temperature
	Sl2CtOut	°F	Sleep 2	Cut out temperature
	DftOffTm	seconds	No Sensor	Default “off” time. Used in case of sensor failure

Storage Menu (Left Control Only)	DISPLAY	VALUE	MODE	DEFINITION
	Refriger	All		Set to None, 1 Hopper, 2 Hopper, or Cabinet
	HprCutIn	°F	All	Hopper temperature cut in
	HprCtOut	°F	All	Hopper temperature cut out
	HprOffst	°F	All	Temperature offset between left and right side
	Hpr Off	minutes	No Sensor	Default “off” time. Used in case of sensor failure
	Hpr On	seconds	No Sensor	Default “on” time. Used in case of sensor failure
	CabCutIn	°F	All	Refrigerated cab cut in temperature
	CabCtOut	°F	All	Refrigerated cab cut out temperature
	Cab Off	seconds	No Sensor	Default “off” time. Used in case of sensor failure
	Cab On	seconds	No Sensor	Default “on” time. Used in case of sensor failure

thaws rapidly which minimizes product breakdown. The control will stay in the “Sleep 1 Mode” until sensing a preset temperature (Sl2CutIn).

E. Sleep 2 Mode

The “Sleep 2 Mode” maintains the freezing cylinder temperature between two preset values (Sl2CutIn and Sl2CtOut). During the “Sleep 2 Mode”, the stir cycle runs. The "Sleep 2 Mode" is often referred to by customers as the “night mode” and the freezer will stay in this mode until a spigot is opened or the PUSH TO FREEZE button is pressed.

F. Sleep 3 Mode (Version 3.5 or Higher)

If a high torque, run time, or drive motor error condition occurs after the control has tried to clear it three times, the control will move to the "Sleep 3 Mode". Freezing cylinder refrigeration runs for 4 seconds every 10 minutes. This ensures the product temperature never increases above 40°F. The stir cycle and the auger do not run during "Sleep 3 Mode".

The control will exit "Sleep 3 Mode" if the PUSH TO FREEZE button is pressed, the spigot is pulled, or the Freezing Cylinder Off-On switch is placed in the Off position.

G. Clean Mode

When the CLEAN button is pressed, the drive motor of that barrel starts and will run for 20 minutes.

Modifying Control Settings

To change the value of a system function, locate the function on the IntelliTec Settings Menu and follow the steps below.

IMPORTANT:

Before making changes to any settings, record the original values. If the setting changes do not achieve desired results, revert settings to their original values.

1. Press and hold SEL button for 8 seconds. While still holding the SEL button, press the up arrow button (⇑). The LCD Screen will read DISPLAY.
2. Release both buttons.
3. Press the left arrow button (⇐) to get to the correct menu (Basic, Advanced, or Storage).
4. Press the up arrow button (⇑) to navigate to the value that needs to be changed.
5. Press SET button to enter edit mode.
6. Press the up arrow button (⇑) to change setting.
7. Press SET button to save the setting and exit the edit mode.
8. Press the up arrow (⇑) and left arrow (⇐) buttons to navigate through the rest of the settings as needed.
9. When all changes have been completed, press the up arrow button (⇑) from ExitMenu to return to the Mode Screen.

Error codes

When the freezer experiences a problem, one of the following error codes will be displayed on the control

(Continued on page 65)

panel. Each error code directs you to the system location of the malfunction.

ERROR CODE	MALFUNCTION
1	Soft Error
2	High Torque
3	Run Time
4	Clean
5	Freezing Cylinder Sensor
6	Hopper Sensor (single hopper freezers)
7	Drive Motor
8	Cab Sensor
9	High Pressure Cutout
10	Auxiliary Sensor
11	Low Temperature
12	Left Hopper Sensor
13	Right Hopper Sensor
14	No Current

To return the freezer to normal operation, any error causing condition must be corrected and the Freezing Cylinder Off-On switch must be placed in the Off position and back in the On position before the affected side of the freezer will return to normal operation.

Error Code 1 - Soft Error

The Soft Error (E1) occurs when there has been a loss of communication between the analog to digital connection. The connection will restart and an error will get logged. There will not be any interruption to normal operation and there will not be any notification of this error. The log will be available for future analysis.

Error Code 2 - High Torque

If the control panel displays a High Torque Error (E2), the controller has sensed that the drive motor is running at 125% of the preset CutOut amp setting for 10 or more seconds. Very low and/or fluctuating supply voltages typically cause this error. The error can also be caused by faulty motor or starting components which could produce a high amp draw.

Error Code 3 - Run Time

The Run Time Error (E3) occurs when the compressor runs continuously for 20 minutes without the product reaching consistency in "Serve Mode" or if the product does not reach the Sl2CtOut temperature in "Sleep 2 Mode". This error is generally caused by very low mix levels in the freezer's mix container or from product breakdown. Another common cause results from a restriction preventing mix from entering the freezing cylinder. Check the mix on the affected freezing cylinder. If the level mix is low, add mix. If there is a possibility that the mix is broken down, clean and sanitize the freezer and replace the mix with fresh product.

Ice crystals in the liquid mix container can clog the mix inlet system and

(Continued on page 66)

prevent mix from entering the freezing cylinder. Thoroughly thaw mix per manufacturer's recommendations. To check for ice crystals, pour a small amount of product in the mix container through a clean and sanitized sieve or strainer. If ice crystals are in the mix, check the temperature of the walk-in cooler where the mix is stored or the temperature of the freezer's cabinet. If the freezer's cabinet is below 34°F (1°C), adjust the temperature from the left control touchpad, under the Storage Menu (Refer to Section 3 - Controller Adjustments).

In a cabinet freezer or with a freezer using a U3 mix pump, check the condition of the neoprene hose running through the mix pump head. If it shows signs of wear, rotate or replace it as outlined in the freezer's or pump's Owner's Manual.

The Run Time Error may also occur if airflow within the freezer has reduced or stopped. Check the sides and top of the freezer for anything that would restrict airflow. Check the condenser filter and clean if necessary. Check the evaporator for frost that could restrict airflow.

The compressor will run continuously if a solenoid valve fails to open. This could be due to loose wiring, magnetic coil failure, a stuck valve or a faulty control board.

After the cause of the problem is found and remedied place the Freezing Cylinder Off-On switch in the Off position and back in the On position.

Error Code 4 - Clean

If the freezer is left in the Clean Mode for more than 20 minutes, the control panel will display a Clean Error (Error 04). This condition does not reflect a problem with the freezer itself. The Clean Error has been programmed into the controller as a safeguard to protect the freezer from potential damage caused by the freezer being accidentally left in "Clean Mode". To clear the Clean Error, place the Freezing Cylinder (or Main Power) Off-On switch in the Off position and back in the On position.

Error Code 5 - Freezing Cylinder Sensor

The Freezing Cylinder Sensor Error (E5) indicates a failure of the barrel sensor or an extreme out of range condition (< -34°F or > 99°F). If the control panel displays an E5, place the Freezing Cylinder (or Main Power) Off-On switch in the Off position and back in the On position. If the control panel still displays the error code, refer to the freezer's wiring diagram and the Temperature Sensor Chart (Figure 11). Check each lead of the sensor to ground for continuity. If continuity is found, replace the sensor. To check the resistance of the sensor, place a thermocouple on the suction line at the exit of the freezing cylinder. Compare temperature and sensor resistance with the table as reference. If measured value does not coincide with a value on the table (± 5%), replace the sensor.

NOTE

When the freezer encounters a Freezing Cylinder Sensor Error, the freezer will continue to run using preset timers. This mode will allow the operator to continue serving product until the freezer can be serviced.

(Continued on page 67)

Error Code 6 - Hopper Sensor (single hopper freezers)

The Hopper Sensor Error (E6) indicates a failure of the hopper sensor or an extreme out of range condition (< -34°F or > 99°F). If the control panel displays an E6, place the Freezing Cylinder (or Main Power) Off-On switch in the Off position and back in the On position. If the control panel still displays the error condition code, refer to the freezer's wiring diagram and the Temperature Sensor Chart. Check each lead of the sensor to ground for continuity. If continuity is found, replace the sensor. To check the resistance of the sensor, place a thermocouple on the suction line at the exit of the freezing cylinder. Compare temperature and sensor resistance with the table as reference. If measured value does not coincide with a value on the table (±5%), replace the sensor.

°F	Resistance	°F	Resistance
-22	176950	40	26100
-20	165200	42	24725
-18	154300	44	23400
-16	144200	46	22175
-14	134825	48	21000
-12	126125	50	19900
-10	118050	52	18875
-8	110550	54	17900
-6	103550	56	17000
-4	97075	58	16125
-2	91025	60	15325
0	85400	62	14550
2	80150	64	13825
4	75275	66	13150
6	70725	68	12500
8	66475	70	11875
10	62500	72	11300
12	58800	74	10750
14	55325	76	10250
16	52100	78	9750
18	49075	80	9300
20	46250	82	8850
22	43600	84	8450
24	41125	86	8050
26	38800	88	7675
28	36625	90	7325
30	34575	92	7000
32	32675	94	6675
34	30875	96	6375
36	29175	98	6100
38	27600	100	5825

Sensor Resistance to Temperature

Error Code 7 - Drive Motor

If the control panel displays a Drive Motor Error (E7), the control does not sense current coming from the drive motor. Place the Freezing Cylinder (or Main Power) Off-On switch in the Off position and back in the On position. If the error returns, use the freezer's wiring diagram and check connections at the IntelliTec control and at the motor. An E7 may also be the result of a faulty drive motor contactor.

Error Code 8 - Cab Sensor

A Cab Sensor Error (E8) indicates a cabinet temperature sensor failure. This error will also appear in an extreme out of range condition (< -34°F or > 99°F). To remedy this error, place the Freezing Cylinder (or Main Power) Off-On switch in the Off position and back in the On position. If the control panel still displays the error condition code, refer to the wiring diagram and the temperature sensor value table. Check each lead of the sensor to ground for continuity. If continuity is found, replace the sensor. Place a thermocouple in the cabinet evaporator discharge air stream (outlet air flow). Compare temperature to sensor resistance using the table as reference. If Cut-in/Cutout values do not coincide with the values on the table, replace the sensor.

Error Code 9 - High Pressure Cut-out

High Pressure Cutout Errors (E9) are usually caused by a dirty or inefficient

(Continued on page 68)

condenser. If the control panel displays an E9, place the Freezing Cylinder Off-On switch in the Off position. Press the High Pressure Cutout Reset switch and place the Freezing Cylinder (or Main Power) Off-On switch back in the On position.

In air cooled condenser models, check the air filter to make sure it is clean. Replace or clean the filter as required. Check for proper air clearance around the freezer. Refer to the freezer's Owner's Manual for clearances. Check the condenser for blockage, and be sure condenser fan is functioning.

On water cooled condenser models, check for proper water flow through the condenser coil.

After the cause of the error is determined and corrected, place the Freezing Cylinder (or Main Power) Off-On switch in the Off position and back in the On position.

Error Code 10 - Auxiliary Sensor

An Auxiliary Temperature Sensor Error (E10) occurs if the temperature sensor on the control board fails. The control shuts down the system to prevent equipment damage. If there is an E10 the control board may be faulty.

Error Code 11 - Low Temperature

The Low Temperature Error (E11) occurs when the temperature of the gas refrigerant at the barrel sensor falls below -20°F or -34°F (depending on model). Although the freezer will not shut down, the active freezing cycle will immediately end. This error usually occurs when the freezer continues to run in a low mix condition or if the freezer runs out of mix. The product towards the front of the barrel tends to freeze solid. When the temperature on the freezing cylinder lowers to the preset value, the IntelliTec control will display an E11.

Error Code 12 - Left Hopper Sensor

The Left Hopper Sensor Error (E12) indicates a failure of the hopper sensor or an extreme out of range condition (< -34°F or > 99°F). If the control panel displays an E12, place the Freezing Cylinder Off-On switch in the Off position and back in the On position. If the control panel still displays the error condition code, refer to the freezer's wiring diagram and the Temperature Sensor Chart (Figure 11). Check each lead of the sensor to ground for continuity. If continuity is found, replace the sensor. To check the resistance of the sensor, place a thermocouple on the suction line at the exit of the freezing cylinder. Compare temperature and sensor resistance with the table as reference. If measured value does not coincide with a value on the table (± 5%), replace the sensor.

Error Code 13 - Right Hopper Sensor

The Right Hopper Sensor Error (E13) indicates a failure of the hopper sensor or an extreme out of range condition (< -34°F or > 99°F). If the control panel displays an E13, place the Freezing Cylinder Off-On switch in the Off position and back in the On position. If the control panel still displays the error condition code, refer to the freezer's wiring diagram and the Temperature Sensor Chart (Figure 11). Check each lead of the sensor to ground for continuity. If continuity is found, replace the sen-

(Continued on page 69)

sor. To check the resistance of the sensor, place a thermocouple on the suction line at the exit of the freezing cylinder. Compare temperature and sensor resistance with the table as reference. If measured value does not coincide with a value on the table (± 5%), replace the sensor.

Error Code 14 - No Current (Version 3.5 or Higher)

The No Current Error (E14) occurs during the refrigeration cycle. The control monitors amperage of the drive motor. If sensed amperage is under 0.4A, the control will attempt to restart the contactor and an the error gets logged. There will not be any interruption to normal operation and there will not be any notification of this error. If the error does not clear after 3 attempts, a Drive Motor Error (E7) will occur.

COMMO TIMEOUT Error

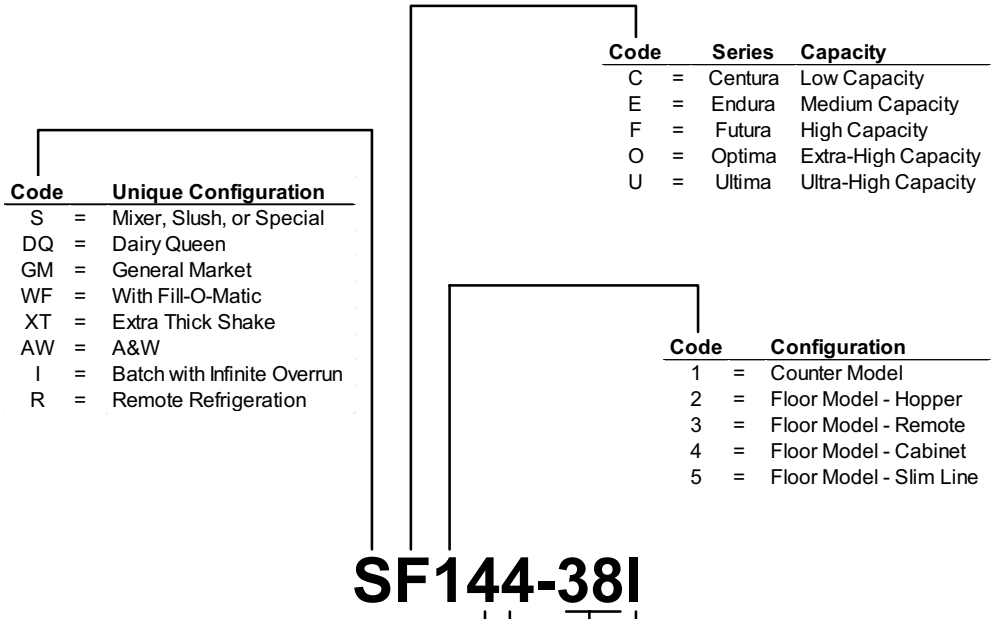
A COMMO TIMEOUT Error indicates a communication interruption between the display and the control board. This error can be caused by a poor connection or a faulty phone cable. Disconnect and reconnect the telephone cable at the control board. If the error does not clear, disconnect and reconnect the telephone cable at the display panel module. If the error still appears, the cable may be faulty or the display panel module may be faulty.

ALTERNATING FLASHING CONTROL PANEL LIGHTS

On freezers with a Main Power Switch, when this switch is placed in the ON position and the Freezing Cylinder Off-On switch is in the Off position, the green and amber display panel lights will flash in alternating sequence. This indicates that the storage cabinet or hopper is being refrigerated, but the left freezing cylinder is not receiving power. Placing the Freezing Cylinder OFF/ON switch in the ON position will return the freezing cylinder to the SLEEP mode. Pressing the PUSH TO FREEZE button will begin the freezing cycle.

The display panel lights will also flash in an alternating sequence under any error codes. Clear the error and place the Freezing Cylinder (or Main Power) Off-On switch in the Off position and back in the On position.

Model Identification System



Code		Series	Capacity
C	=	Centura	Low Capacity
E	=	Endura	Medium Capacity
F	=	Futura	High Capacity
O	=	Optima	Extra-High Capacity
U	=	Ultima	Ultra-High Capacity

Code		Unique Configuration
S	=	Mixer, Slush, or Special
DQ	=	Dairy Queen
GM	=	General Market
WF	=	With Fill-O-Matic
XT	=	Extra Thick Shake
AW	=	A&W
I	=	Batch with Infinite Overrun
R	=	Remote Refrigeration

Code		Configuration
1	=	Counter Model
2	=	Floor Model - Hopper
3	=	Floor Model - Remote
4	=	Floor Model - Cabinet
5	=	Floor Model - Slim Line

Code		Barrel Arrangement
1	=	Single
2	=	Twin
3	=	Twin Twist
4	=	Twin Combination
5	=	Verticle
6	=	Triple
7	=	Batch

Represents the generation of the freezer. Model numbers often end with G, H, or I. Not all models include this code.

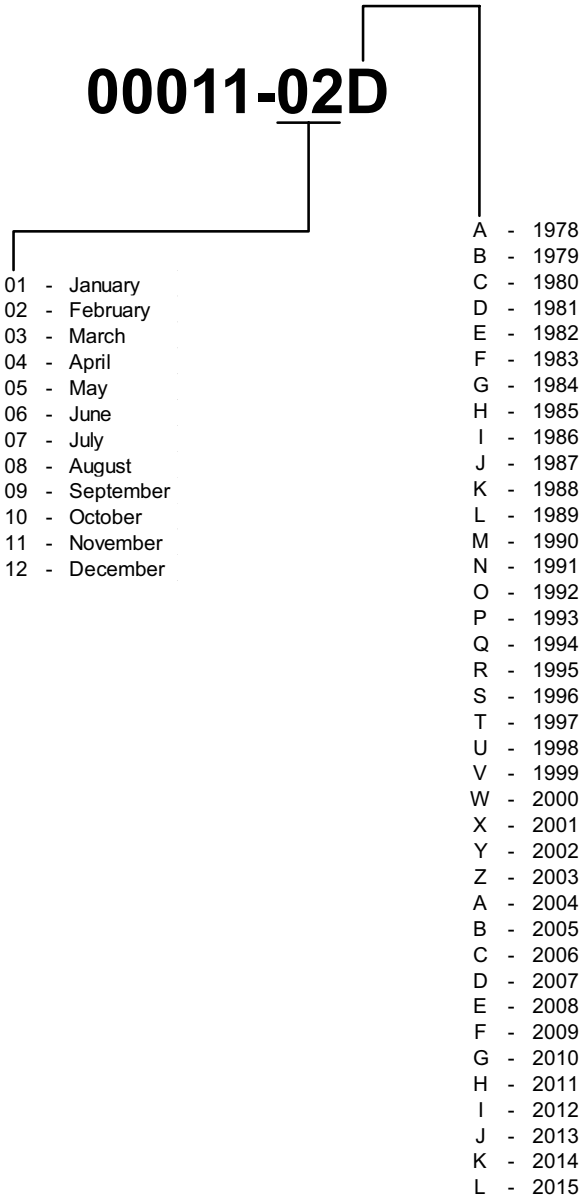
Code		Type
1	=	Soft Serve/Ice Cream
2	=	Shake/Cocktail
3	=	Shake - Flavor Injection
4	=	Combo - Soft Serve & Shake
5	=	Combo - Soft Serve & Flavor Injection Shake
6	=	Custard
7	=	Slush - Cold
8	=	Cocktail
9	=	Batch

Code	Electrical	Condensing
-17	115V / 60Hz / 1PH	Water Cooled
-37	115V / 60Hz / 1PH	Air Cooled
-38	208V-230V / 60Hz / 1PH	Air Cooled
-18	208V-230V / 60Hz / 1PH	Water Cooled
-28	208V-230V / 60Hz / 1PH	Remote Condensing Unit
-48	208V-230V / 60Hz / 1PH	Air Cooled
-302	220V-240V / 50Hz / 1PH	Air Cooled
-209	208V-230V / 60Hz / 3PH	Remote Condensing Unit
-309	208V-230V / 60Hz / 3PH	Air Cooled
-109	208V-230V / 60Hz / 3PH	Water Cooled
-409	208V-230V / 60Hz / 3PH	Air Cooled

Serial Number Date Code

The serial number on Stoelting freezers is located on the model identification plate. The ID plate is attached to the side or back panel.

The last three digits of the serial number represent the date of manufacture.



Freezer Output Capacities

	Soft Serve		
	Gallons of Finished Product per Hour by Volume	Total Servings per Hour by Weight	Liters of Finished Product per Hour
Soft Serve - 4 oz servings			
E111 Counter Single	5	120	19
E131 Counter Twin Twist	5 running one side 8.5 running both sides	120 one side 204 both sides	19 one side 32 both sides
F111 Counter Single	8	192	30
F131 Counter Twin Twist	7 running one side 11.5 running both sides	168 one side 276 both sides	26 one side 44 both sides
F431 Floor Twin Twist Refrigerated Cabinet	9.5 running one side 13 running both sides	228 one side 312 both sides	26 one side 49 both sides
O111 Counter Single	11.5	276	44
4231 Floor Twin Twist	10 each side	240 each side	38 each side
217 / 217R Floor Single Remote Pump	15	360	57
227R /238R Floor Twin Twist Remote Pump	16 each side	384 each side	61 each side
U421 Floor Twin Refrigerated Cabinet	18 each side	432 each side	68 each side
U431 Floor Twin Twist Refrigerated Cabinet	18 each side	432 each side	68 each side
Combination Soft Serve and Shake/Frozen Beverage			
SF144 Counter Combo	7 Soft Serve 11 Shake	168 Soft Serve 117 Shake	26 Soft Serve 42 Shake
U444 Floor Combo	18 Soft Serve 27 Shake	432 Soft Serve 288 Shake	68 Soft Serve 102 Shake

Note:
- Ratings at 70°F (21°C) ambient temperature using 40°F (4°C) prechilled mix
- Finished product temperature is 17°F to 21°F (-8°C to -6°C)
- Soft Serve capacities based on mix weighing 144 oz per gallon of liquid, and 50% overrun.

	Slush and Shake		
	Gallons of Finished Product per Hour	Total Servings per Hour by Volume	Liters of Finished Product per Hour
Frozen Beverage - 6 oz servings			
E157 Counter Single	5	107	19
E257 Floor Single	5	107	19
F257 Floor Single	7.5	160	28
SO218 Floor Single	26	555	98
SO328 Floor Twin	26 each side	555 each side	98 each side
Shake/Frozen Beverage - 12 oz servings			
E112 Counter Single	12	128	45
F112 Counter Single	18	192	68
F212 Floor Single	18	192	68
Shake - 12 oz servings			
O112 Counter Single	26	277	98
O212 Floor Single	26	277	98
225R Floor Single Remote Pump	24	256	91
SU412 Floor Single Refrigerated Cabinet	30	320	114

Note:
- Ratings at 70°F (21°C) ambient temperature using 40°F (4°C) prechilled mix
- Shake temperature is 24°F to 26°F (-4°C to -3°C) - 50% overrun

Mix Characteristics

Overrun

Overrun is the increase in product volume, expressed as a percentage, resulting from the addition of air in frozen product. For example, if 1 gallon of liquid soft serve mix is poured into a freezer and 1-1/2 gallons are drawn out, the result is 50% overrun.

The introduction of air into the finished frozen product is essential to taste. *Low overrun* occurs when there is not enough air blended into the product. This results in a dense, icy product. It is darker in color, appears wet and has less flavor. *High overrun* occurs when there is too much air blended into the product. This results in a fluffy appearance that is less satisfying. It may have pockmarks on the surface.

Overrun is calculated using the following equation:

$$\frac{\text{Liquid Weight - Frozen Weight}}{\text{Frozen Weight}} \times 100 = \%\ \text{Overrun}$$

Product Breakdown

Product breakdown occurs when the product is in the freezing cylinder too long. Changes in temperature from the freezer cycling on and off as well as the auger beating the product will cause stabilizer breakdown and product separation. The result is a glossy, grainy product that may be very cold yet slumps and appears warm.

Mix Separation

Many powdered and fruit base mixes will separate in the hopper. Unless dispensing a large volume of mix, it is necessary to stir the mix to prevent separation. Always agitate mix before pouring it into hopper.

Product Overrun Calculation

The following calculations are based on the following:

- 16 oz cup filled with liquid mix weighs 18.375 oz
- 8 oz cup filled with liquid mix weighs 9.188 oz

$$\frac{\text{Liquid Weight - Frozen Weight}}{\text{Frozen Weight}} \times 100 = \%\ \text{Overrun}$$

Frozen Weight		
16 oz. Cup	**8 oz. Cup**	**Overrun**
18.375	9.188	0%
18.50	9.00	2%
17.50	8.75	5%
17.00	8.50	8%
16.50	8.25	11%
16.00	8.00	15%
15.75	7.875	17%
15.50	7.75	19%
15.25	7.625	21%
15.00	7.50	23%
14.75	7.375	25%
14.50	7.25	27%
14.25	7.125	29%
14.00	7.00	31%
13.75	6.875	34%
13.50	6.75	36%
13.25	6.675	39%
13.00	6.50	41%
12.75	6.375	44%
12.50	6.25	47%
12.25	6.125	50%
12.00	6.00	53%
11.75	5.875	56%
11.50	5.75	60%

Minimizing Breakdown

Product breakdown occurs to varying degrees in all types of soft serve mixes and all brands of soft serve freezers.

Identifying Product Breakdown

Product breakdown results from repeated temperature changes and over-agitation. When the frozen product temperature rises, ice crystals in the product melt and release the air trapped inside them. When the temperature drops again, the ice crystals refreeze, but in a different location. They migrate to other ice crystals that are still frozen. The air trapped inside them is beaten out of the product by agitation.

Each time a freezer's refrigeration system cycles on and off, the crystals continue to grow with less air, causing the product to become unstable. To prevent this, mix manufacturers use stabilizers like carrageenan, guar gum and sodium carboxymethyl cellulose. However, stabilizers can diminish the product's flavor, and mix manufacturers use the smallest amount of stabilizer necessary to maintain the product.

When product breakdown occurs, the soft serve will have the correct temperature and overrun, but will not stand up or form properly on a cone. The product will have a glossy appearance and ice crystals will give it a grainy texture.

Preventing Product Breakdown

Select a freezer designed to minimize product breakdown. The Stoelting line of soft serve and frozen yogurt freezers are designed with exclusive features that assure optimum performance of all types of mixes. The nylon auger flights gently fold the mix during freezing, the patent mix inlet regulators maintain overrun (the ideal air-to-mix ratio), and Stoelting's Energy Conservation Mode (E.C.M.) reduces mix agitation.

Size the output capacity of the freezer to match the volume of product to be sold. Do not use the largest capacity freezer where a smaller capacity freezer would be adequate. The more time the product spends in the cylinder in a frozen state, the more product breakdown will occur.

Always keep fresh mix in the freezing cylinder. The less time the product spends in the cylinder after it is frozen, the better. By moving higher volumes of mix through the freezer, product breakdown can be prevented. Once product breakdown occurs, the only solution is to replace it with fresh mix.

Pressure / Temperature Chart

°F	R–22	R–404A	°C
–40	0.6	4.9	–40
–38	1.4	5.9	–39
–36	2.2	7.0	–38
–34	3.1	8.0	–37
–32	4.0	9.2	–36
–30	4.9	10.3	–34
–28	5.9	11.5	–33
–26	6.9	12.8	–32
–24	8.0	14.1	–31
–22	9.1	15.4	–30
–20	10.2	16.8	–29
–18	11.4	18.3	–28
–16	12.6	19.8	–27
–14	13.9	21.3	–26
–12	15.2	22.9	–24
–10	16.5	24.6	–23
–8	17.9	26.3	–22
–6	19.4	28.0	–21
–4	20.9	29.8	–20
–2	22.4	31.7	–19
0	24.0	33.7	–18
2	25.7	35.7	–17
4	27.4	37.7	–16
6	29.1	39.8	–14
8	31.0	42.0	–13
10	32.8	44.3	–12
12	34.8	46.6	–11
14	36.8	49.0	–10
16	38.8	51.5	–9
18	40.9	54.0	–8
20	43.1	56.6	–7
22	45.3	59.3	–6
24	47.6	62.0	–4
26	50.0	64.8	–3
28	52.4	67.7	–2
30	55.0	70.7	–1
32	57.5	73.8	0
34	60.2	76.9	1
36	62.9	80.2	2
38	65.7	83.5	3
40	68.6	86.9	4
42	71.5	90.4	6
44	74.5	94.0	7
46	77.6	97.6	8
48	80.8	101.4	9
50	84.1	105.3	10
52	87.4	109.2	11
54	90.8	113.3	12
56	94.4	117.4	13
58	98.0	121.7	14

°F	R–22	R–404A	°C
60	101.6	126.0	16
62	105.4	130.5	17
64	109.3	135.0	18
66	113.2	139.7	19
68	117.3	144.4	20
70	121.4	149.3	21
72	125.7	154.3	22
74	130.0	159.4	23
76	134.5	164.6	24
78	139.0	169.9	26
80	143.6	175.4	27
82	148.4	181.0	28
84	153.2	186.7	29
86	158.2	192.5	30
88	163.2	198.4	31
90	168.4	204.5	32
92	173.7	210.7	33
94	179.1	217.0	34
96	184.6	223.4	36
98	190.2	230.0	37
100	195.9	236.8	38
102	201.8	243.6	39
104	207.7	250.6	40
106	213.8	257.8	41
108	220.0	265.1	42
110	226.4	272.5	43
112	232.8	280.1	44
114	239.4	287.9	46
116	246.1	295.8	47
118	253.0	303.8	48
120	260.0	312.1	49
122	267.1	320.4	50
124	274.3	329.0	51
126	281.7	337.7	52
128	289.2	346.6	53
130	296.9	355.6	54
132	304.7	364.9	56
134	312.6	374.3	57
136	320.7	383.9	58
138	329.0	393.7	59
140	337.4	403.7	60
142	345.9	413.9	61
144	354.6	424.3	62
146	363.5	434.9	63
148	372.5	445.7	64
150	381.7	456.8	66

This table shows pressure (psig) under saturated conditions.

Peak Heat of Rejection

Model	Peak Heat of Rejection per Cylinder	Water Cooled Only		Air Cooled Only
		Peak Water Usage per Cylinder	Estimated Water Usage per Cylinder	AC Load Rating
100F / 100C	6,040 BTU/hr	-	-	2,390 BTU/hr
E157 / E257 / WFE257	6,040 BTU/hr	-	-	2,390 BTU/hr
LE157 / LE257	6,040 BTU/hr	-	-	2,390 BTU/hr
F257 / WFF257	5,736 BTU/hr	-	-	2,202 BTU/hr
SO218 / SO318	32,500 BTU/hr	6.5 GPM	1.8 GPM	11,119 BTU/hr
SO328	32,500 BTU/hr	6.5 GPM	1.8 GPM	11,119 BTU/hr
SC118	5,736 BTU/hr	-	-	2,713 BTU/hr
E112	7,090 BTU/hr	-	-	4,927 BTU/hr
F112	18,900 BTU/hr	3.8 GPM	1.2 GPM	7,929 BTU/hr
U218	25,100 BTU/hr	5.0 GPM	1.4 GPM	8,467 BTU/hr
217 / 217R	32,500 BTU/hr	6.5 GPM	1.8 GPM	12,825 BTU/hr
225 / 225R	25,300 BTU/hr	5.1 GPM	1.2 GPM	10,035 BTU/hr
237R / 238R	32,500 BTU/hr	6.5 GPM	1.8 GPM	12,825 BTU/hr
F431	25,100 BTU/hr	5.0 GPM	1.4 GPM	10,173 BTU/hr
SU412 / U412	25,100 BTU/hr	5.0 GPM	1.4 GPM	8,893 BTU/hr
O411	30,800 BTU/hr	6.2 GPM	1.7 GPM	10,495 BTU/hr
U421 / DQU421	41,700 BTU/hr	8.4 GPM	2.3 GPM	18,463 BTU/hr
U431 / DQU431	41,700 BTU/hr	8.4 GPM	2.3 GPM	18,463 BTU/hr
U444	41,700 BTU/hr	8.4 GPM	2.3 GPM	18,463 BTU/hr
4231	29,000 BTU/hr	5.8 GPM	1.5 GPM	12,959 BTU/hr
E111	4,024 BTU/hr	-	-	3,603 BTU/hr
E131	18,900 BTU/hr	-	-	9,209 BTU/hr
F111	12,700 BTU/hr	-	-	5,435 BTU/hr
F131	29,000 BTU/hr	5.8 GPM	1.5 GPM	10,400 BTU/hr
F144 / SF144	29,000 BTU/hr	5.8 GPM	1.5 GPM	10,400 BTU/hr
O111	25,100 BTU/hr	5.0 GPM	1.4 GPM	11,026 BTU/hr
O112 / O212	29,000 BTU/hr	5.8 GPM	1.5 GPM	11,253 BTU/hr
CF-101	21,000 BTU/hr	-	-	13,684 BTU/hr
M-202	41,700 BTU/hr	8.4 GPM	2.3 GPM	21,875 BTU/hr
CC-101, CC-202, CC-303, CC-404	25,948 BTU/hr	5.2 GPM	2.9 GPM	20,032 BTU/hr

The values above are listed as worst case scenarios and are to be used for building design and not for actual energy consumption estimates.

Peak Heat of Rejection - This occurs when freezing down liquid mix at startup. Peak heat of rejection values are provided to assist in the selection of glycol cooling system pumps and for specifying piping sizes for water and glycol cooling systems. Values listed assume the freezer is running at maximum output 67% of the time. Maximum output is defined as 24-10oz. cones per hour. Actual values will be lower under typical use conditions.

Peak Water Consumption - This value is when the freezer is running coolant at a maximum flow rate using excessively warm (90°F) glycol or water.

AC Load Rating - Typical values assuming the freezer is running at 67% of the machines maximum output. Peak load ratings will be 50% higher than

Temperature Sensor Testing

Test a temperature sensor using the following instructions:

1. Disconnect the sensor leads from the control board
2. Check each lead of the sensor to ground for continuity. If continuity is found, replace the sensor
3. Check the resistance of the sensor. Place a thermocouple on the suction line at the exit of the freezing cylinder or hopper.
4. Run the refrigeration system and compare temperature and sensor resistance with the correct table below.
5. If the measured value does not coincide with the value on the table (±5%), replace the sensor.

Challenger Sensor

1183170 - Orange wires

°F	Resistance	°F	Resistance
-40	17975	32	2350
-38	16875	34	2250
-36	15825	36	2150
-34	14850	38	2025
-32	13950	40	1950
-30	13125	42	1850
-28	12350	44	1775
-26	11600	46	1675
-24	10925	48	1600
-22	10275	50	1525
-20	9700	52	1450
-18	9125	54	1400
-16	8600	56	1325
-14	8125	58	1275
-12	7650	60	1225
-10	7225	62	1175
-8	6825	64	1100
-6	6450	66	1075
-4	6100	68	1025
-2	5775	70	975
0	5450	72	925
2	5175	74	900
4	4875	76	850
6	4625	78	825
8	4375	80	775
10	4150	82	750
12	3950	84	725
14	3725	86	700
16	3550	88	675
18	3375	90	650
20	3200	92	625
22	3025	94	600
24	2875	96	575
26	2750	98	550
28	2600	100	525
30	2475		

IntelliTec/Type 4 Sensor

2171962 - Blue wires

°F	Resistance	°F	Resistance
-22	176950	40	26100
-20	165200	42	24725
-18	154300	44	23400
-16	144200	46	22175
-14	134825	48	21000
-12	126125	50	19900
-10	118050	52	18875
-8	110550	54	17900
-6	103550	56	17000
-4	97075	58	16125
-2	91025	60	15325
0	85400	62	14550
2	80150	64	13825
4	75275	66	13150
6	70725	68	12500
8	66475	70	11875
10	62500	72	11300
12	58800	74	10750
14	55325	76	10250
16	52100	78	9750
18	49075	80	9300
20	46250	82	8850
22	43600	84	8450
24	41125	86	8050
26	38800	88	7675
28	36625	90	7325
30	34575	92	7000
32	32675	94	6675
34	30875	96	6375
36	29175	98	6100
38	27600	100	5825

Lubricants

The following table lists the different lubricants currently in use on various parts in different machines.

Part Number	Type	Where Used	Models
508135	Petro Gel	O-Rings, Gaskets, Seals, Mating Surfaces	Soft Serve, Shake, Slush, Cocktail
508017	Haynes Spray	O-rings, Mating Surfaces	219 Pump
508048	Hex Drive Antifreeze (Spline lube)	Drive-to-drive end of Auger Shaft Connection	Soft Serve, Shake Freezers
508045	Lubricant Kit	Gearbox - Grove/Patterson Master	2000 Series
508044	Lubricant Kit	Gearbox - Von Weise	2000 Series

Mix Inlet Regulators

The following table lists all available mix inlet regulators for each freezer. Different mix inlet regulators may be required depending on mix type.

Model	PartNumber	Code	Hole Size	Type
205	2147877	3LC	5/16"	Extended
205	2147878	3LA	3/16"	Extended
205	2149238	3A	3/16"	Standard
205	2149240	3C	5/16"	Standard
2111 / 2112 (115 VOLT)	2147799	2LA	3/16"	Extended
2111 / 2112 (115 VOLT)	2147879	2LB	1/4"	Extended
2111 / 2112 (115 VOLT)	2147880	2LC	5/16"	Extended
2111 / 2112 (115 VOLT)	2149241	2C	5/16"	Standard
2111 / 2112 (115 VOLT)	2149242	2B	1/4"	Standard
2111 (230 VOLT)	2149243-01	2A	3/16"	Standard
2131	2147799	2LA	3/16"	Extended
2131	2147879	2LB	1/4"	Extended
2131	2147880	2LC	5/16"	Extended
2131	2149241	2C	5/16"	Standard
2131	2149242	2B	1/4"	Standard
2131	2149243-01	2A	3/16"	Standard
2211	2147799	2LA	3/16"	Extended
2211	2147877	3LC	5/16"	Extended
2211	2149238	3A	3/16"	Standard
2211	2149240	3C	5/16"	Standard
3111 / 3112 / 3211 / 3212	2147877	3LC	5/16"	Extended
3111 / 3112 / 3211 / 3212	2147878	3LA	3/16"	Extended
3111 / 3112 / 3211 / 3212	2149238	3A	3/16"	Standard
3111 / 3112 / 3211 / 3212	2149240	3C	5/16"	Standard
4211	1145194	4B	1/4"	Standard
4211	1150807	4LC	5/16"	Extended
4211	1150832	4LB	1/4"	Extended
4212	1143201	-	3/16"	Standard
4213	1143201	-	3/16"	Standard
4231	1145194	4B	1/4"	Standard
4231	1146231	4C	5/16"	Standard
4231	1150807	4LC	5/16"	Extended
4231	1150832	4LB	1/4"	Extended
C131	2149243-01	2A	3/16"	Standard
E111 / E211 (115 VOLT)	2149238	3A	3/16"	Standard
E111 / E211 (230 VOLT)	2149238	3A	3/16"	Standard
E111 / E211 (115 VOLT)	2149240	3C	5/16"	Standard
E111 / E211 (230 VOLT)	2147878	3LA	3/16"	Extended
E111 / E211 (115 VOLT)	2147877	3LC	5/16"	Extended
E111 / E211 (230 VOLT)	2147877	3LC	5/16"	Extended
E112 / XE112	2183642	-	-	-
E131 / F131 / F144 / SF144	2149243-01	2A	3/16"	Standard
E131 / F131 / F144 / SF144	2149242	2B	1/4"	Standard
E131 / F131 / F144 / SF144	2147879	2LB	1/4"	Extended
E131 / F131 / F144 / SF144	2149241	2C	5/16"	Standard
E131 / F131 / F144 / SF144	2147880	2LC	5/16"	Extended
F111 / F211	2149238	3A	3/16"	Standard
F111 / F211	2147878	3LA	3/16"	Extended
F111 / F211	2147877	3LC	5/16"	Extended
F112	2183721	-	-	-
O111	1145194	4B	1/4"	Standard (Ser. #0 - #23169)
O111	2149243-01	2A	3/16"	Standard (Ser. #23170 Plus)
O112 / O212	1177740	-	-	-
SO218 / SO318	2177317	-	-	-

Brazing & Soldering Materials

Dissimilar Base Material Joints

All joints made with dissimilar base materials are brazed with BAg-2.

This includes:

1. Compressor and liquid line filter drier joints (copper flashed steel joined to copper).
2. Challenger evaporator and suction accumulator joints (stainless joined to copper).
3. Access valve joints (brass joined to copper).

Heat Exchange Joints

Use BCuP-5 for brazing the condenser tube to the suction line heat exchange.

Other Joints

All other joints can brazed with BCuP-3 or BCuP-5.

Important

Do not use 50/50 solder to braze any joints. This solder cannot handle low temperatures and will breakdown.

AWS Class	Alloy Name	% Silver	Form
BAg-2	Easy-Flo 35	35	0.047" diameter wire
BCuP-3	Sil-Fos 5	5	0.125" x 0.05" x 20"
BCuP-3	Sil-Fos 5	5	0.125" square x 36"
BCuP-5	Sil-Fos 15	15	0.125" x 0.05" x 20"

2118

Manufactured from 1987 to 1994

Torque
Control

	Model 2118	
Dimensions	**Freezer**	**with crate**
width	14-1/2" (36,7 cm)	16-1/2" (41,8 cm)
height	26-1/2" (67,2 cm)	31" (78,7 cm)
depth	31" (78,7 cm)	33-1/4" (84,5 cm)
Weight	194 lbs (87,1 kg)	210 lbs (95,2 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**	
running amps	approximately 16A	
breaker type	20A regular breaker	
Compressor	5,800 Btu/hr	
Air Flow	Air cooled units require 6" (15,24 cm) air space on both sides, 10" on top.	
Freezing Cylinder Volume	2 gallon (8 quart), 7,57 liters	
Production Capacity	8 GPH (30,28 liters)	

	2118
Refrigerant	R-502
Charge	22 oz
Superheat out of Evaporator	35-40°F
Suction Pressure	40-60 psig
Discharge Pressure	220 psig

	2118
Torque Control Spring Length	3-3/4"
Torque Control Timer Delay	71-81 sec

R118 / STR118 / CU25

Manufactured from 1996 to 2003

Torque
Control

	R118/STR118 (Hideaway Dispenser)		Hideaway Condenser Unit	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	9-1/2" (24,1 cm)	20" (50,7 cm)	17" (43,2 cm)	28" (71,0 cm)
height	25-1/2" (64,7 cm)	43" (109,2 cm)	27-1/4" (69,2 cm)	38" (96,5 cm)
depth	29-3/4" (75,5 cm)	34" (86,4 cm)	22-1/4" (56,5 cm)	35" (88,9 cm)
Weight	134 lbs (60,7 kg)	172 lbs (78,0 kg)	lbs (0,0 kg)	225 lbs (102,0 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**		**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 9A		approximately 8A	
Compressor			14,800 Btu/hr	
Drive Motor	1/2 hp			
Freezing Cylinder Volume	2 gallon (8 quart), 7,57 liters			
Production Capacity	18 GPH (68,14 liters)			

	R118
Refrigerant	R-404A
Charge	80 oz
Superheat out of Evaporator	10-14°F
Suction Pressure	28-29 psig
Discharge Pressure	240 psig

	R118
Torque Control Spring Length	Mid-Range
Torque Control Timer Delay	9 sec

S100 / S200 / S300 / S400 / S500

Manufactured from 1995 to 2002

	S100		S400		S500	
Dimensions	**Shaver**	**with crate**	**Shaver**	**with crate**	**Shaver**	**Freezer**
width	11-1/4" (28,6 cm)	19-1/4" (48,8 cm)	11-1/4" (28,6 cm)	19-1/4" (48,8 cm)	11-1/4" (28,6 cm)	19-1/4" (48,8 cm)
height	26" (66,0 cm)	43" (109,2 cm)	21" (53,2 cm)	43" (109,2 cm)	21" (53,2 cm)	43" (109,2 cm)
depth	26" (66,0 cm)	34" (86,4 cm)	26" (66,0 cm)	34" (86,4 cm)	26" (66,0 cm)	34" (86,4 cm)
Weight	71 lbs (32,2 kg)	120 lbs (54,3 kg)	71 lbs (32,2 kg)	120 lbs (54,3 kg)	75 lbs (34,0 kg)	120 lbs (54,3 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**					
running amps	approximately 12A					
connection type	NEMA5-15P power cord provided					
Blender Motor	0.43 hp 2 Speed (18,000 & 14,000 RPM)					
Hopper Volume	5 gallon (20 quart),18,93 liters of cubed ice - Makes 100 - 12 oz drinks. 10 gallon (40 quart), 37,85 liters hopper optional.					
Blender	1/2 gallon, 64 oz (1,89 liters)					

	S200		S300	
Dimensions	**Shaver**	**with crate**	**Shaver**	**with crate**
width	11-1/4" (28,6 cm)	14" (35,6 cm)	11-1/4" (28,6 cm)	14" (35,6 cm)
height	24" (60,1 cm)	29" (73,7 cm)	24" (60,1 cm)	29" (73,7 cm)
depth	26" (66,0 cm)	28" (71,0 cm)	26" (66,0 cm)	28" (71,0 cm)
Weight	62 lbs (28,1 kg)	86 lbs (39,0 kg)	62 lbs (28,1 kg)	86 lbs (39,0 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**			
running amps	approximately 6A			
connection type	NEMA5-15P power cord provided			
Shaver Motor	0.25 hp (Capacitor Start)			
Hopper Volume	5 gallon (20 quart),18,93 liters of cubed ice - Makes 100 - 12 oz drinks. 10 gallon (40 quart), 37,85 liters hopper optional.			

217 / 217R

Manufactured from 1975 to 1995

Challenger
Control

	Model 217		Model 217R	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	15" (38,1 cm)	25" (63,5 cm)	15" (38,1 cm)	25" (63,5 cm)
height	63-1/2" (161,3 cm)	67" (170,1 cm)	55-3/4" (141,5 cm)	67" (170,1 cm)
depth	39-1/4" (99,7 cm)	51" (129,5 cm)	39-1/4" (99,7 cm)	51" (129,5 cm)
Weight	405 lbs (183,6 kg)	520 lbs (235,9 kg)	375 lbs (170,0 kg)	490 lbs (222,3 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**		**3 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 10A		approximately 8A	
fuse size	35A maximum		35A maximum	
breaker type	HACR or regular 40A breaker		HACR or regular 30A breaker	
connection type	hardwire		hardwire	
Compressor	14,000 Btu/hr			
Drive Motor	2 hp			
Air Flow	Air cooled units require 6" (15,24 cm) air space at front and back. 217R air cooled remote is available.			
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.			
Hopper Volume	6.5 gallon (24,61 liters)		N/A	
Freezing Cylinder Volume	1.33 gallon (5.32 quart), 5,4 liters			
Production Capacity	15 GPH (56,78 liters)			

	217
Refrigerant	R-12
Charge	34 oz
Superheat out of Evaporator	16-27°F
Suction Pressure	3-8 psig
Discharge Pressure	125 psig
Hopper Evaporator Back Pressure	28 psig

218

Manufactured from 1975 to 1997

Challenger
Control

	Model 218	
Dimensions	**Freezer**	**with crate**
width	30" (76,2 cm)	37" (93,1 cm)
height	64-1/4" (163,1 cm)	67" (170,1 cm)
depth	39-1/4" (99,7 cm)	51" (129,5 cm)
Weight	860 lbs (390,1 kg)	980 lbs (444,5 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
running amps	approximately 12A	approximately 8A
fuse size	30A maximum	20A maximum
breaker type	HACR or regular 40A breaker	HACR or regular 30A breaker
connection type	hardwire	hardwire
Compressor	Two - 9,500 Btu/hr	
Drive Motor	Two - 2 hp	
Air Flow	Air cooled units require 6" (15,2 cm) air space at front and back	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	Two - 7.5 gallons (28,39 liters)	
Freezing Cylinder Volume	Two - 1.33 gallon (5.32 quart), 5,4 liters	
Production Capacity	14 GPH (53,00 liters) per Freezing Cylinder	

	218
Refrigerant	R-12
Charge	34 oz
Superheat out of Evaporator	16-27°F
Suction Pressure	3-8 psig
Discharge Pressure	125 psig
Hopper Evaporator Back Pressure	28 psig

225R

Manufactured from 1978 to 1995

Challenger
Control

	Model 225R	
Dimensions	**Freezer**	**with crate**
width	15" (38,1 cm)	25" (63,5 cm)
height	55-3/4" (141,5 cm)	67" (170,1 cm)
depth	39-1/4" (99,7 cm)	51" (129,5 cm)
Weight	385 lbs (174,5 kg)	495 lbs (224,5 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
fuse size	30A maximum	20A maximum
breaker type	HACR breaker	HACR breaker
Compressor	12,500 Btu/hr	
Drive Motor	3/4 hp	
Air Flow	Air cooled units require 6" (15,2 cm) air space at front and back	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Freezing Cylinder Volume	1.33 gallon (5.32 quart), 5,4 liters	
Production Capacity	Shake - 24 GPH (90,84 liters)	

	225R
Refrigerant	R-12
Charge	34 oz
Superheat out of Evaporator	25°F
Suction Pressure	13-13.5 psig
Discharge Pressure	125 psig

237R / 238R

Manufactured from 1987 to 1995

Challenger
Control

	Model 237R/238R	
Dimensions	**Freezer**	**with crate**
width	16" (40,6 cm)	25" (63,5 cm)
height	60-3/4" (154,3 cm)	67" (170,1 cm)
depth	39-1/4" (99,7 cm)	51" (129,5 cm)
Weight	560 lbs (254,0 kg)	675 lbs (306,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
running amps	approximately 12A	approximately 8A
fuse size	40A maximum	20A maximum
breaker type	30A maximum HACR breaker	30A maximum regular breaker
Compressor	Two - 9,500 Btu/hr	
Drive Motor	Two - 2 hp	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings. Air cooled remote is available.	
Freezing Cylinder Volume	Two - 1.33 gallon (5.32 quart), 5,4 liters	
Production Capacity	14 GPH (54,89 liters) per Freezing Cylinder	

	238R
Refrigerant	R-12
Charge	34 oz
Superheat out of Evaporator	16-27°F
Suction Pressure	3-8 psig
Discharge Pressure	125 psig

5431

Manufactured from 1989 to 1998

Type 2
Control

	Model 5431	
Dimensions	**Freezer**	**with crate**
width	26-1/2" (67,2 cm)	32-1/2" (82,5 cm)
height	73-1/2" (186,6 cm)	77" (195,5 cm)
depth	38-3/4" (98,4 cm)	46-1/2" (118,0 cm)
Weight	930 lbs (421,8 kg)	1080 lbs (489,8 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
running amps	approximately 12A	approximately 10A
fuse size	26A maximum	25A maximum
breaker type	HACR or regular 40A breaker	HACR or regular 30A breaker
connection type	hardwire	hardwire
Compressor	Two - 9,720 Btu/hr	
Drive Motor	Two - 2 hp	
Air Flow	Air cooled units require 6" (15,2 cm) air space on both sides and back and 12" of clearance on top.	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Freezing Cylinder Volume	Two - 2.1 gallon (8.4 quart), 7,95 liters	
Production Capacity	14 GPH (53,00 liters) per Freezing Cylinder	

	5431
Refrigerant	R-502
Charge per Side	(W/C) 29 oz (A/C) 32 oz
Superheat out of Evaporator	5-10°F
Suction Pressure	18-22 psig
Discharge Pressure	230 psig
	Cabinet Refrigeration
Refrigerant	R-12
Charge	7 oz
Cab Evaporator Back Pressure	20-22 psig

	5431
Coarse Consistency Adjustment Note: Stop is 6:00	2:15 
Amps at Consistency	Refer to service bulletin
OFF Time Setting	58-62 sec
ON Time Setting	8-12 sec
Motor Adjustment Switches	9:00
Open	5 - 10
Closed	1 - 4

2111 / 2211

Manufactured from 1984 to 1992

Type 2
Control

	Model 2111		Model 2211	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	14-1/4" (36,2 cm)	20" (50,7 cm)	15" (38,1 cm)	18" (45,7 cm)
height	31" (78,7 cm)	35-1/2" (90,2 cm)	58" (147,3 cm)	71" (180,3 cm)
depth	26-1/4" (66,7 cm)	29-1/2" (74,9 cm)	20-1/2" (52,1 cm)	22" (55,8 cm)
Weight	210 lbs (95,2 kg)	240 lbs (108,9 kg)	175 lbs (79,4 kg)	200 lbs (90,7 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**		**1 Phase, 115 VAC, 60Hz**	
running amps	approximately 13.6A		approximately 13.6A	
connection type	NEMA5-15P power cord provided		NEMA5-15P power cord provided	
Electrical	**1 Phase, 208-230 VAC, 60Hz**			
running amps	approximately 10.0A			
connection type	NEMA6-20P power cord provided			
Compressor	4,200 Btu/hr			
Drive Motor	3/4 hp			
Air Flow	Air cooled units require 6" (15,24 cm) air space on right, 10" (25,4 cm) above.		Air cooled units require 6" (15,24 cm) air space at front and back.	
Hopper Volume	3 gallon (11,35 liters)			
Freezing Cylinder Volume	0.5 gallon (2 quart), 1,9 liters			
Production Capacity	4 GPH (15,14 liters)			

	2111SS	2211SS	2211SH
Refrigerant	R-502	R-502	R-502
Charge	20.5 oz	20 oz	20.5 oz
Superheat out of Evaporator	13-19°F	13-19°F	24-32°F
Suction Pressure	16-20 psig	16-20 psig	23-25 psig
Discharge Pressure	215 psig	230 psig	215 psig
Hopper Evaporator Back Pressure	59-61 psig	59-61 psig	59-61 psig
Liquid Solenoid Pressure Switch (Series C, D & E)	38 psig fixed differential of 6 psig	38 fixed differential of 6 psig	N/A

	2111-37/2211-37	2111-38
Coarse Consistency Adjustment Note: Stop is 6:00	1:00 D 2:30 	9:30** 
Amps at Consistency	5.2 A *D - 6.3 A *E - 6.3 A	5.2 A *D - 6.3 A *E - 6.3 A
OFF Time Setting	40-44 sec	40-44 sec
ON Time Setting	30-34 sec *D - 18-22 sec *E - 30-34 sec	30-34 sec *D - 18-22 sec *E - 30-34 sec
Motor Adjustment Switches	8:00	8:00
Open	1 + 3, 5 - 10	1 + 3, 5 - 10
Closed	2 + 4	2 + 4

Note:

Refrigeration specifications given at full load.

The 2112 has a forced refrigeration on time of 22 seconds.

* Letter codes on control table refer to the following: 2111-37D-04F-S

** The 2111-38 coarse consistency is 3:00 for serial numbers #4048 and higher.

Discontinued Model Specifications

2131

Manufactured from 1984 to 1992

Type 2
Control

	Model 2131	
Dimensions	**Freezer**	**with crate**
width	22" (55,8 cm)	28" (71,0 cm)
height	33" (83,7 cm)	35" (88,9 cm)
depth	30-3/4" (78,0 cm)	35" (88,9 cm)
Weight	380 lbs (172,4 kg)	450 lbs (204,0 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 14A	
fuse size	35A maximum	
breaker type	HACR or regular 40A breaker	
connection type	hardwire	
Compressor	9,720 Btu/hr	
Drive Motor	Two - 3/4 hp	
Air Flow	Air cooled units require 6" (15,2 cm) air space on both sides.	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	3 gallon (11,35 liters)	
Freezing Cylinder Volume	0.5 gallon (2 quart), 1,9 liters	
Production Capacity	4 GPH (15,14 liters)	

	2131
Refrigerant	R-502
Charge	*B 33 oz *C-D 35 oz
Superheat out of Evaporator	13-19°F
Suction Pressure	One Cylinder 12-13 psig Both Cylinders 16-20 psig
Discharge Pressure	215 psig
Hopper Evaporator Back Pressure	59-61 psig
Liquid Solenoid Pressure Switch (Series C, D & E)	38 psig fixed differential of 6 psig

Note:

Refrigeration specifications given at full load.

The 2112 has a forced refrigeration on time of 22 seconds.

* Letter codes on control table refer to the following: 2131-38D-04F-S

** 12-13 psig with one side running

† The 2131 coarse consistency is 3:00 for serial numbers #4012 and higher.

	2131
Coarse Consistency Adjustment Note: Stop is 6:00	9:45† 
Amps at Consistency	2.7 A C - 3.2 A D - 3.2 A
OFF Time Setting	52-56 sec C - 68-72 sec
ON Time Setting	18-22 sec
Motor Adjustment Switches	7:00
Open	C - 8:00 5 - 10
Closed	1 - 4

3111 / 3211

Manufactured from 1984 to 1992

Type 2 Control **Type 4** Control

	Model 3111		Model 3211	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	20" (50,7 cm)	24" (60,1 cm)	15" (38,1 cm)	25" (63,5 cm)
height	33" (83,7 cm)	31" (78,7 cm)	56-3/4" (144,0 cm)	67" (170,1 cm)
depth	30" (76,2 cm)	34" (86,4 cm)	25" (63,5 cm)	51" (129,5 cm)
Weight	230 lbs (104,2 kg)	260 lbs (117,9 kg)	260 lbs (117,9 kg)	370 lbs (167,8 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**			
running amps	approximately 12A			
fuse size	20A maximum			
breaker type	HACR or regular			
Compressor	6,000 Btu/hr			
Drive Motor	3/4 hp			
Air Flow	Air cooled units require 6" (15,24 cm) air space at back and both sides.		Air cooled units require 6" (15,24 cm) air space back.	
Hopper Volume	3 gallon (11,35 liters)			
Freezing Cylinder Volume	0.75 gallon (3 quart), 2,84 liters			
Production Capacity	6.5 GPH (24,61 liters)			

	3111	3211
Refrigerant	R-502	R-502
Charge	26 oz	26 oz
Superheat out of Evaporator	20°F	20°F
Suction Pressure	19-19.5 psig	27-27.5 psig
Discharge Pressure	220 psig	220 psig
Hopper Evaporator Back Pressure	59-61 psig	59-61 psig

Set Button	Display	Value
1	SEC TM	5
2	SEC TM STB	15
3	SEC TM STB	52
4	AMP CRS	*
5	SRV	18
6	STB	44
7	LKG STB	**
8	MTR	0.5
9	HPR	45
10	LKG	22
CYCLE		4

	3111/3211
Coarse Consistency Adjustment Note: Stop is 6:00	1:00 
Amps at Consistency	4.6 A
OFF Time Setting	50-54 sec
ON Time Setting	28-34 sec
Motor Adjustment Switches	7:00
Open	1 + 3, 5 - 10
Closed	2 + 4

Note:

Refrigeration specifications given at full load.

* AMP CRS value needs to be adjusted to product requirements.

** Shake sensor values:
- 11,900Ω at room temperature
- 32,600Ω in ice water

Discontinued Model Specifications

4211

Manufactured from 1986 to 1993

Type 2
Control

	Model 4211	
Dimensions	**Freezer**	**with crate**
width	14" (35,6 cm)	25" (63,5 cm)
height	61" (154,9 cm)	67" (170,1 cm)
depth	30" (76,2 cm)	35" (88,9 cm)
Weight	335 lbs (151,1 kg)	445 lbs (201,8 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
running amps	approximately 13A	approximately 10A
fuse size	24A maximum	25A maximum
breaker type	HACR or regular 40A breaker	HACR or regular 30A breaker
connection type	hardwire	hardwire
Compressor	9,720 Btu/hr	
Drive Motor	1-1/2 hp	
Air Flow	Air cooled units require 6" (15,2 cm) air space on back and one side. Louvered side panel can be installed on left or right side to suit location	
Hopper Volume	3 gallon (11,35 liters)	
Freezing Cylinder Volume	0.5 gallon (2 quart), 1,89 liters	
Production Capacity	4 GPH (15,14 liters)	

	4211
Refrigerant	R-502
Charge	*C (W/C) 32 oz *E (W/C) 26 oz *C (A/C) 32 oz *E (A/C) 39 oz
Superheat out of Evaporator	15°F
Suction Pressure	20 psig
Discharge Pressure	220 psig
Hopper Evaporator Back Pressure	55-57 psig

	4211-18/4211-38	4211-109/4211-309
Coarse Consistency Adjustment Note: Stop is 6:00	2:30 	10:30 
OFF Time Setting	52-56 sec *E - 98-102 sec	52-56 sec *E - 98-102 sec
ON Time Setting	12-17 sec *E - 25-27 sec	13-17 sec *E - 25-27 sec
Motor Adjustment Switches	9:00	8:00
Open	1 + 3, 5 - 10	1 + 3, 5 - 10
Closed	2 + 4	2 + 4

Note:

Refrigeration specifications given at full load.

* Letter codes on control table refer to the following:
4211-38E-04F-S

4212

Manufactured from 1985 to 1995

Type 3 Control **Type 4** Control

	Model 4212	
Dimensions	**Freezer**	**with crate**
width	14" (35,6 cm)	25" (63,5 cm)
height	61" (154,9 cm)	67" (170,1 cm)
depth	30" (76,2 cm)	51" (129,5 cm)
Weight	335 lbs (151,1 kg)	445 lbs (201,8 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
running amps	approximately 12A	approximately 7A
fuse size	30A maximum	20A maximum
breaker type	HACR or regular 40A breaker	HACR or regular 25A breaker
connection type	hardwire	hardwire
Compressor	11,700 Btu/hr	
Drive Motor	3/4 hp	
Air Flow	Air cooled units require 6" (15,2 cm) air space on back and one side. Louvered side panel can be installed on left or right side to suit location	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	6.5 gallon (24,7 liters)	
Freezing Cylinder Volume	2 gallon (8 quart), 7,57 liters	
Production Capacity	Shake - 22 GPH (83,28 liters) Cocktail - 29 GPH (109,78 liters)	

	4212
Refrigerant	R-502
Charge	C (W/C) 31 oz E, F (W/C) 26 oz C (A/C) 31 oz D, F (A/C) 35 oz
Superheat out of Evaporator	35°F
Suction Pressure	28 psig
Discharge Pressure	220 psig
Hopper Evaporator Back Pressure	59-61 psig

Set Button	Display	Value
1	SEC TM	15
2	SEC TM STB	15
3	SEC TM STB	54
4	AMP CRS	*
5	(F/C) SRV	27
6	(F/C) STB	35
7	AMP MTR	0.8
8	(F/C) HPR	45
9	(F/C) LKG	7

	4212
Coarse Consistency Adjustment Note: Stop is 6:00	11:00 
Sensor Value	11,900Ω at 72°F 32,600Ω at 34°F

Note:

* AMP CRS value needs to be adjusted to product requirements.

Discontinued Model Specifications

4231

Manufactured from 1987 to 1996

Type 2
Control

	Model 4231	
Dimensions	**Freezer**	**with crate**
width	26" (66,0 cm)	32-1/2" (82,5 cm)
height	62" (157,5 cm)	64" (162,5 cm)
depth	30-1/4" (76,7 cm)	40-1/2" (102,9 cm)
Weight	690 lbs (312,1 kg)	810 lbs (367,3 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
running amps	approximately 13A	approximately 9A
fuse size	35A maximum	25A maximum
breaker type	HACR or regular 40A breaker	HACR or regular 30A breaker
connection type	hardwire	hardwire
Compressor	Two - 9,720 Btu/hr One - 965 Btu/hr	
Drive Motor	Two - 2 hp	
Air Flow	Air cooled units require 6" (15,2 cm) air space at back.	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings with 2 inlets and 2 outlets or 1/2" N.P.T. water and drain fittings with 1 inlet and 1 outlet	
Hopper Volume	Two - 6.5 gallon (24,7 liters) with separate refrigeration system	
Freezing Cylinder Volume	Two - 1 gallon (4 quart), 3,79 liters	
Production Capacity	10 GPH (37,85 liters) per Freezing Cylinder	

	4231
Refrigerant	R-502
Charge	C (W/C) 35 oz B, E, F (W/C) 26 oz (A/C) 35 oz
Superheat out of Evaporator	15°F
Suction Pressure	20 psig
Discharge Pressure	220 psig
	Hopper Refrigeration
Refrigerant	R-12
Charge	10 oz
Suction Pressure	12 psig
Discharge Pressure	110 psig
EPR Valve	26 psig

	4231-18/4231-38	4231-109/4231-309
Coarse Consistency Adjustment Note: Stop is 6:00	2:00 	2:30 
OFF Time Setting	A-D - 178-182 sec E-F - 78-80 sec	A-D - 178-182 sec E-F - 78-80 sec
ON Time Setting	A-D - 8-12 sec E-F - 8-12 sec	A-D - 8-12 sec E-F - 8-12 sec
Motor Adjustment Switches	9:00	8:00
Open	5 - 10	5 - 10
Closed	1 - 4	1 - 4

4231G

Manufactured from 1994 to 2004

Type 2
Control

	Model 4231G	
Dimensions	**Freezer**	**with crate**
width	26" (66,0 cm)	32-1/2" (82,5 cm)
height	62" (157,5 cm)	64" (162,5 cm)
depth	30-1/4" (76,7 cm)	40-1/2" (102,9 cm)
Weight	690 lbs (312,1 kg)	810 lbs (367,3 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	**3 Phase, 208-230 VAC, 60Hz**
running amps	approximately 9A	approximately 8A
fuse size	30A maximum	25A maximum
breaker type	HACR or regular 35A breaker	HACR or regular 30A breaker
connection type	hardwire	hardwire
Compressor	Two - 10,000 Btu/hr	
Drive Motor	Two - 2 hp	
Air Flow	Air cooled units require 6" (15,2 cm) air space at back.	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings with 2 inlets and 2 outlets or 1/2" N.P.T. water and drain fittings with 1 inlet and 1 outlet	
Hopper Volume	Two - 6.5 gallon (24,7 liters)	
Freezing Cylinder Volume	Two - 1 gallon (4 quart), 3,79 liters	
Production Capacity	10 GPH (37,85 liters) per Freezing Cylinder	

	4231G
Refrigerant	R-404A
Charge	(W/C) 26 oz (A/C) 35 oz
Superheat out of Evaporator	11-17°F
Suction Pressure	20-22 psig
Discharge Pressure	225-235 psig
EPR Valve	69-71 psig

	4231-18G/4231-38G	4231-109G/4231-309G
Coarse Consistency Adjustment Note: Stop is 6:00	2:00 	2:30 
OFF Time Setting	G - 30-34 sec	G - 30-34 sec
ON Time Setting	14 sec	14 sec
Motor Adjustment Switches	9:00	8:00
Open	9 - 10	9 - 10
Closed	1 - 8	1 - 8

E111 / E112 / F111 / F112

Manufacture Dates: E from 1992 to 2001 / F from 2001 to 2003

Type 4
Control

	Model E111/E112		Model F111/F112	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	15" (38,1 cm)	19-1/2" (49,5 cm)	15" (38,1 cm)	19-1/2" (49,5 cm)
height	35-3/4" (90,7 cm)	43" (109,2 cm)	35-3/4" (90,7 cm)	43" (109,2 cm)
depth	28-3/4" (73,0 cm)	33-1/2" (85,0 cm)	28-3/4" (73,0 cm)	33-1/2" (85,0 cm)
Weight	220 lbs (99,7 kg)	265 lbs (120,2 kg)	230 lbs (104,2 kg)	275 lbs (124,7 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**		**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 12A		approximately 10A	
connection type	NEMA5-20P power cord provided		NEMA6-15P power cord provided	
Electrical	**1 Phase, 208-230 VAC, 60Hz**			
running amps	approximately 7A			
fuse size	15A maximum			
breaker type	HACR or regular			
connection type	NEMA6-15P power cord provided			
Compressor	4,320 Btu/hr (HCFC-22)		4,770 Btu/hr (HCFC-22)	
Drive Motor	3/4 hp			
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides			
Hopper Volume	3 gallon (11,35 liters)			
Freezing Cylinder Volume	0.55 gallon (2.2 quart), 2,10 liters		0.75 gallon (3 quart), 2,84 liters	
Production Capacity	Soft Serve - 4 GPH (15,14 liters)		Soft Serve - 7 GPH (26,50 liters) Shake - 13 GPH (41,21 liters)	

	E111/F111	E112/F112
Refrigerant	R-22	R-22
Charge	28 oz	28 oz
Superheat out of Evaporator	13-18°F	13-18°F
Suction Pressure	20 psig	26 psig
Discharge Pressure	180 psig	180 psig
Hopper Evaporator Back Pressure	54-56 psig	54-56 psig

Set Button	Display	E111/ F111	E112/ F112
1	SEC TM	3	3
2	SEC TM STB	35	35
3	SEC TM STB	60	60
4	AMP CRS	*	*
5	SRV	20	20
6	STB	31	36
7	LKG STB	4	2
8	MTR	0.5	0.5
9	HPR	45	45
10	LKG	17	25
CYCLE		8	8

Note:

* AMP CRS value needs to be adjusted to product requirements.

C131

Manufactured from 1994 to 1998

Type 5
Control

	Model C131	
Dimensions	**Freezer**	**with crate**
width	22" (55,8 cm)	28" (71,0 cm)
height	34-3/4" (88,2 cm)	38" (96,5 cm)
depth	27" (68,5 cm)	35" (88,9 cm)
Weight	332 lbs (150,5 kg)	412 lbs (186,9 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 10A	
connection type	NEMA5-15P power cord provided	
Compressor	9,960 Btu/hr (HCFC-22)	
Drive Motor	2 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Hopper Volume	Two - 3 gallon (11,35 liters)	
Freezing Cylinder Volume	Two - 0.5 gallon (2 quart), 1,89 liters	
Production Capacity	4 GPH (15,14 liters) each Freezing Cylinder 8 GPH (30,28 liters) both Freezing Cylinders	

	C131
Refrigerant	R-22
Charge	35 oz
Suction Pressure	18-20 psig
Discharge Pressure	180 psig
Hopper Evaporator Back Pressure	54-56 psig

Control Adjustment

Serve Pressure Control

For Colder Product - Turn blue range screw clockwise 1/4 turn

For Warmer Product - Turn blue range screw counterclockwise 1/4 turn.

Allow 3-4 no draw cycles before adjusting further.

NOTE

Over adjustment can cause continuous freezer operation. After an adjustment is made, observe operation to confirm freezer will shut off.

Night Pressure Control

Follow same procedures as the serve pressure control but wait 1-2 hours before adjusting further.

E111G / F111G / F112G

Manufactured from 2004 to December, 2005

Type 4
Control

	Model E111G		Model F111G / F112G	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	15" (38,1 cm)	19-1/2" (49,5 cm)	15" (38,1 cm)	19-1/2" (49,5 cm)
height	35-3/4" (90,7 cm)	43" (109,2 cm)	35-3/4" (90,7 cm)	43" (109,2 cm)
depth	28-3/4" (73,0 cm)	33-1/2" (85,0 cm)	28-3/4" (73,0 cm)	33-1/2" (85,0 cm)
Weight	220 lbs (99,7 kg)	265 lbs (120,2 kg)	230 lbs (104,2 kg)	275 lbs (124,7 kg)
Electrical	**1 Phase, 115 VAC, 60Hz**		**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 12A		approximately 10A	
connection type	NEMA5-20P power cord provided		NEMA6-15P power cord provided	
Compressor	3,550 Btu/hr		5,550 Btu/hr	
Drive Motor	3/4 hp			
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides			
Hopper Volume	3 gallon (11,35 liters)			
Freezing Cylinder Volume	0.65 gallon (2.6 quart), 2,46 liters		0.85 gallon (3.4 quart), 3,22 liters	
Production Capacity	Soft Serve - 4.5 GPH (17,03 liters)		Soft Serve - 7 GPH (26,50 liters) Shake - 13 GPH (41,21 liters)	

	E111G/F111G	F112G
Refrigerant	R-404A	R-404A
Charge	E111G - 28 oz F111G - 30 oz	30 oz
Superheat out of Evaporator	10°F	18-20°F
Suction Pressure	24-28 psig	26 psig
Discharge Pressure	230-240 psig	230-240 psig
Hopper Evaporator Back Pressure	69-71 psig	69-71 psig

Set Button	Display	E111G/ F111G	F112G
1	SEC TM	3	3
2	TM STB	35	35
3	SEC TM STB	60	60
4	AMP CRS	*	*
5	SRV	18	20
6	STB	32	36
7	LKG STB	5	2
8	MTR	0.5	0.5
9	HPR	45	45
10	LKG	20	25
CYCLE		8	8

Note:

* AMP CRS value needs to be adjusted to product requirements.

E211 / F211

Manufactured from 1997 to 2002

Type 4
Control

	Model E211		Model F211	
Dimensions	**Freezer**	**with crate**	**Freezer**	**with crate**
width	15" (38,1 cm)	19-1/2" (49,5 cm)	15" (38,1 cm)	19-1/2" (49,5 cm)
height	62" (157,5 cm)	64" (162,5 cm)	62" (157,5 cm)	64" (162,5 cm)
depth	28-3/4" (73,0 cm)	34" (86,4 cm)	28-3/4" (73,0 cm)	34" (86,4 cm)
Weight	230 lbs (104,2 kg)	300 lbs (136,0 kg)	240 lbs (108,9 kg)	310 lbs (140,5 kg)
Electrical	**1 Phase, 115 VAC, 60Hz (Ser. #0 - #12520)**		**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 12A		approximately 10A	
connection type	NEMA5-15P power cord provided		NEMA6-15P power cord provided	
Electrical	**1 Phase, 115 VAC, 60Hz (Ser. #12521 Plus)**			
running amps	approximately 14A			
connection type	NEMA5-20P power cord provided			
Electrical	**1 Phase, 208-230 VAC, 60Hz**			
running amps	approximately 8A			
connection type	NEMA6-15P power cord provided			
Compressor	4,320 Btu/hr (HCFC-22)		4,770 Btu/hr (HCFC-22)	
Drive Motor	3/4 hp			
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides			
Hopper Volume	3 gallon (11,35 liters)			
Freezing Cylinder Volume	0.55 gallon (2.2 quart), 2,10 liters		0.75 gallon (3 quart), 2,84 liters	
Production Capacity	5 GPH (18,93 liters)		7 GPH (26,50 liters)	

	E211/F211
Refrigerant	R-22
Charge	22 oz
Superheat out of Evaporator	20°F
Suction Pressure	20 psig
Discharge Pressure	180 psig
Hopper Evaporator Back Pressure	54-56 psig

Set Button	Display	E211/ F211
1	SEC TM	3
2	TM STB	35
3	SEC TM STB	60
4	AMP CRS	*
5	SRV	20
6	STB	36
7	LKG STB	2
8	MTR	0.5
9	HPR	45
10	LKG	17
CYCLE		8

Note:

* AMP CRS value needs to be adjusted to product requirements.

Discontinued Model Specifications

E131

Manufactured from 1992 to March, 2004

Type 4
Control

	Model E131	
Dimensions	**Freezer**	**with crate**
width	22" (55,8 cm)	28" (71,0 cm)
height	34-3/4" (88,2 cm)	40-1/4" (102,2 cm)
depth	28-1/2" (72,4 cm)	35-1/4" (89,5 cm)
Weight	370 lbs (167,8 kg)	450 lbs (204,0 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 11A	
connection type	NEMA6-20P power cord provided	
Compressor	8,740 Btu/hr (HCFC-22)	
Drive Motor	Two - 3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	Two - 3 gallon (11,35 liters)	
Freezing Cylinder Volume	Two - 0.5 gallon (2 quart), 1,89 liters	
Production Capacity	5 GPH (18,93 liters) each Freezing Cylinder 8 GPH (30,28 liters) both Freezing Cylinders	

	E131
Refrigerant	R-22
Charge	(W/C) 26 oz (A/C) 35 oz
Superheat out of Evaporator	13-18°F
Suction Pressure	Both Cylinders 20 psig
Discharge Pressure	180 psig
Hopper Evaporator Back Pressure	54-56 psig

Set Button	Display	E131
1	SEC TM	3
2	TM STB	15
3	SEC TM STB	72
4	AMP CRS	*
5	SRV	18
6	STB	30
7	LKG STB	5
8	MTR	0.5
9	HPR	45
10	LKG	17
CYCLE		8

Note:

* AMP CRS value needs to be adjusted to product requirements.

E131G

Manufactured from 2004 to May, 2005

Type 4
Control

	Model E131G	
Dimensions	**Freezer**	**with crate**
width	22" (55,8 cm)	28" (71,0 cm)
height	34-3/4" (88,2 cm)	40-1/4" (102,2 cm)
depth	28-1/2" (72,4 cm)	35-1/4" (89,5 cm)
Weight	370 lbs (167,8 kg)	450 lbs (204,0 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 11A	
connection type	NEMA6-20P power cord provided	
Compressor	8,600 Btu/hr (R404A)	
Drive Motor	Two - 3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	Two - 3 gallon (11,35 liters)	
Freezing Cylinder Volume	Two - 0.5 gallon (2 quart), 1,89 liters	
Production Capacity	5 GPH (18,93 liters) each Freezing Cylinder 8 GPH (30,28 liters) both Freezing Cylinders	

	E131G
Refrigerant	R-404A
Charge	(W/C) 26 oz (A/C) 35 oz
Superheat out of Evaporator	20-26°F
Suction Pressure	One Cylinder 10-12 psig Both Cylinders 24-28 psig
Discharge Pressure	225-235 psig
Hopper Evaporator Back Pressure	69-71 psig

Set Button	Display	E131G
1	SEC TM	3
2	TM STB	15
3	SEC TM STB	72
4	AMP CRS	*
5	SRV	18
6	STB	30
7	LKG STB	5
8	MTR	0.5
9	HPR	45
10	LKG	17
CYCLE		8

Note:

* AMP CRS value needs to be adjusted to product require-ments.

Discontinued Model Specifications

F131

Manufactured from 1993 to April, 2004

Type 4
Control

	Model F131	
Dimensions	**Freezer**	**with crate**
width	22" (55,8 cm)	28" (71,0 cm)
height	34-3/4" (88,2 cm)	40-1/4" (102,2 cm)
depth	28-1/2" (72,4 cm)	35-1/4" (89,5 cm)
Weight	385 lbs (174,5 kg)	470 lbs (213,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 11A	
connection type	NEMA6-20P power cord provided	
Compressor	11,400 Btu/hr (HCFC-22)	
Drive Motor	Two - 3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	Two - 3 gallon (11,35 liters)	
Freezing Cylinder Volume	Two - 0.75 gallon (3 quart), 2,84 liters	
Production Capacity	7 GPH (26,50 liters) each Freezing Cylinder 11 GPH (41,64 liters) both Freezing Cylinders	

	F131
Refrigerant	R-22
Charge	(W/C) 26 oz (A/C) 35 oz
Superheat out of Evaporator	13-18°F
Suction Pressure	One Cylinder 10-12 psig Both Cylinders 20 psig
Discharge Pressure	180 psig
Hopper Evaporator Back Pressure	54-56 psig

Set Button	Display	F131
1	SEC TM	3
2	TM STB	15
3	SEC TM STB	72
4	AMP CRS	*
5	SRV	18
6	STB	30
7	LKG STB	5
8	MTR	0.5
9	HPR	45
10	LKG	17
CYCLE		8

Note:

* AMP CRS value needs to be adjusted to product requirements.

F131G

Manufactured from 2004 to November, 2004

Type 4
Control

	Model F131G	
Dimensions	**Freezer**	**with crate**
width	22" (55,8 cm)	28" (71,0 cm)
height	34-3/4" (88,2 cm)	40-1/4" (102,2 cm)
depth	28-1/2" (72,4 cm)	35-1/4" (89,5 cm)
Weight	385 lbs (174,5 kg)	470 lbs (213,1 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 11A	
connection type	NEMA6-20P power cord provided	
Compressor	12,000 Btu/hr (R404A)	
Drive Motor	Two - 3/4 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 3/8" N.P.T. water and drain fittings.	
Hopper Volume	Two - 3 gallon (11,35 liters)	
Freezing Cylinder Volume	Two - 0.85 gallon (3.4 quart), 3,22 liters	
Production Capacity	7 GPH (26,50 liters) each Freezing Cylinder 11 GPH (41,64 liters) both Freezing Cylinders	

	F131G
Refrigerant	R-404A
Charge	(W/C) 32 oz (A/C) 42 oz
Superheat out of Evaporator	7-16°F
Suction Pressure	One Cylinder 10-12 psig Both Cylinders 26-28 psig
Discharge Pressure	235-245 psig
Hopper Evaporator Back Pressure	69-71 psig

Set Button	Display	F131G
1	SEC TM	3
2	TM STB	15
3	SEC TM STB	72
4	AMP CRS	*
5	SRV	18
6	STB	30
7	LKG STB	5
8	MTR	0.5
9	HPR	45
10	LKG	17
CYCLE		8

Note:

* AMP CRS value needs to be adjusted to product require-ments.

Discontinued Model Specifications

O111

Manufactured from 2001 to June, 2006

Type 4
Control

	Model O111	
Dimensions	**Freezer**	**with crate**
width	31-1/2" (80,0 cm)	38-3/4" (98,4 cm)
height	19-3/4" (50,2 cm)	28-3/4" (73,0 cm)
depth	37-1/2" (95,2 cm)	43" (109,2 cm)
Weight	310 lbs (140,5 kg)	380 lbs (172,4 kg)
Electrical	**1 Phase, 208-230 VAC, 60Hz**	
running amps	approximately 12A	
connection type	NEMA6-20P power cord provided	
Compressor	12,000 Btu/hr	
Drive Motor	1-1/2 hp	
Air Flow	Air cooled units require 3" (7,6 cm) air space on both sides	
Plumbing Fittings	Water cooled units require 1/2" N.P.T. water and drain fittings.	
Hopper Volume	6.5 gallons (24,61 liters)	
Freezing Cylinder Volume	1 gallon (4 quart), 3,79 liters	
Production Capacity	10 GPH (37,85 liters)	

	O111
Refrigerant	R-404A
Charge	35 oz
Superheat out of Evaporator	10-14°F
Suction Pressure	22-26 psig
Discharge Pressure	210-225 psig
Hopper Evaporator Back Pressure	69-71 psig

Set Button	Display	O111
1	SEC TM	10
2	TM STB	15
3	SEC TM STB	60
4	AMP CRS	*
5	SRV	20
6	STB	32
7	LKG STB	4
8	MTR	**
9	HPR	45
10	LKG	19
CYCLE		8

Note:

* AMP CRS value needs to be adjusted to product requirements.

** MTR Setting values:
• 1.8 for a 1.5 hp motor
• 0.5 for a 2 hp motor

STOELTING
FOODSERVICE EQUIPMENT

WARRANTY

ROSS & TELME PRODUCT LINE WARRANTY

1. Scope:

Stoelting, LLC warrants to the first user (the "Buyer") that the freezing cylinders, hoppers, compressors, drive motors, speed reducers, beaters and agitator of Stoelting batch and custard freezers will be free from defects in materials and workmanship under normal use and proper maintenance appearing within two (2) years, and that all other components of such equipment manufactured by Stoelting will be free from defects in material and workmanship under normal use and proper maintenance appearing within twelve (12) months after the date that such equipment is originally installed .

2. Disclaimer of Other Warranties:

THIS WARRANTY IS EXCLUSIVE; AND STOELTING HEREBY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

3. Remedies:

Stoelting's sole obligations, and Buyer's sole remedies, for any breach of this warranty shall be the repair or (at Stoelting's option) replacement of the affected component at Stoelting's plant in Kiel, Wisconsin, or (again, at Stoelting's option) refund of the purchase price of the affected equipment, and, during the first twelve (12) months of the warranty period, deinstallation/reinstallation of the affected component from/into the equipment. Those obligations/remedies are subject to the conditions that Buyer (a) signs and returns to Stoelting, upon installation, the Checklist/Warranty Registration Card for the affected equipment, (b) gives Stoelting prompt written notice of any claimed breach of warranty within the applicable warranty period, and (c) delivers the affected equipment to Stoelting or its designated service location, in its original packaging/crating, also within that period. Buyer shall bear the cost and risk of shipping to and from Stoelting's plant or designated service location .

4. Exclusions and Limitations:

This warranty does not extend to parts, sometimes called "wear parts", which are generally expected to deteriorate and to require replacement as equipment is used, including as examples but not intended to be limited to o-rings, auger seals, auger support bushings and drive belts. All such parts are sold

AS IS.

Further, Stoelting shall not be responsible to provide any remedy under this warranty with respect to any component that fails by reason of negligence, abnormal use, misuse or abuse, use with parts or equipment not manufactured or supplied by Stoelting, or damage in transit .

THE REMEDIES SET FORTH IN THIS WARRANTY SHALL BE THE SOLE LIABILITY STOELTING AND THE EXCLUSIVE REMEDY OF BUYER WITH RESPECT TO EQUIPMENT SUPPLIED BY STOELTING; AND IN NO EVENT SHALL STOELTING BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER FOR BREACH OF WARRANTY OR OTHER CONTRACT BREACH, NEGLIGENCE OR OTHER TORT, OR ON ANY STRICT LIABILITY THEORY .

STOELTING
FOODSERVICE EQUIPMENT

WARRANTY

SOFT SERVE / SHAKE FREEZERS

1. Scope:

Stoelting, LLC warrants to the first user (the "Buyer") that the freezer cylinders, hoppers, compressors, drive motors, speed reducers, augers and auger flights of Stoelting soft serve / shake freezers will be free from defects in materials and workmanship under normal use and proper maintenance appearing within five (5) years, and that all other components of such equipment manufactured by Stoelting will be free from defects in material and workmanship under normal use and proper maintenance appearing within twelve (12) months after the date that such equipment is originally installed.

2. Disclaimer of Other Warranties:

THIS WARRANTY IS EXCLUSIVE; AND STOELTING HEREBY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

3. Remedies:

Stoelting's sole obligations, and Buyer's sole remedies, for any breach of this warranty shall be the repair or (at Stoelting's option) replacement of the affected component at Stoelting's plant in Kiel, Wisconsin, or (again, at Stoelting's option) refund of the purchase price of the affected equipment, and, during the first twelve (12) months of the warranty period, deinstallation/reinstallation of the affected component from/into the equipment. Those obligations/remedies are subject to the conditions that Buyer (a) signs and returns to Stoelting, upon installation, the Checklist/Warranty Registration Card for the affected equipment, (b) gives Stoelting prompt written notice of any claimed breach of warranty within the applicable warranty period, and (c) delivers the affected equipment to Stoelting or its designated service location, in its original packaging/crating, also within that period. Buyer shall bear the cost and risk of shipping to and from Stoelting's plant or designated service location.

4. Exclusions and Limitations:

This warranty does not extend to parts, sometimes called "wear parts", which are generally expected to deteriorate and to require replacement as equipment is used, including as examples but not intended to be limited to o-rings, auger seals, auger support bushings and drive belts. All such parts are sold

AS IS.

Further, Stoelting shall not be responsible to provide any remedy under this warranty with respect to any component that fails by reason of negligence, abnormal use, misuse or abuse, use with parts or equipment not manufactured or supplied by Stoelting, or damage in transit.

THE REMEDIES SET FORTH IN THIS WARRANTY SHALL BE THE SOLE LIABILITY STOELTING AND THE EXCLUSIVE REMEDY OF BUYER WITH RESPECT TO EQUIPMENT SUPPLIED BY STOELTING; AND IN NO EVENT SHALL STOELTING BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER FOR BREACH OF WARRANTY OR OTHER CONTRACT BREACH, NEGLIGENCE OR OTHER TORT, OR ON ANY STRICT LIABILITY THEORY.

STOELTING
FOODSERVICE EQUIPMENT

WARRANTY

MIX TRANSFER PUMPS / COCKTAIL / SLUSH

1. Scope:

Stoelting LLC warrants to the first user (the "Buyer") that the evaporator assembly and compressor (if applicable) of Stoelting mix transfer pump, cocktail and slush equipment will be free from defects in materials and workmanship under normal use and proper maintenance appearing within five (5) years (two (2) years for "Mirage" equipment), and that all other components of such equipment manufactured by Stoelting will be free from defects in material and workmanship under normal use and proper maintenance appearing within twelve (12) months after the date that such equipment is originally installed.

2. Disclaimer of Other Warranties:

THIS WARRANTY IS EXCLUSIVE; AND STOELTING HEREBY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

3. Remedies:

Stoelting's sole obligations, and Buyer's sole remedies, for any breach of this warranty shall be the repair or (at Stoelting's option) replacement of the affected component at Stoelting's plant in Kiel, Wisconsin, or (again, at Stoelting's option) refund of the purchase price of the affected equipment, and, during the first twelve (12) months of the warranty period, deinstallation/reinstallation of the affected component from/into the equipment. Those obligations/remedies are subject to the conditions that Buyer (a) signs and returns to Stoelting, upon installation, the Warranty Registration Card for the affected equipment, (b) gives Stoelting prompt written notice of any claimed breach of warranty within the applicable warranty period, and (c) delivers the affected equipment to Stoelting or its designated service location, in its original packaging/crating, also within that period. Buyer shall bear the cost and risk of shipping to and from Stoelting's plant or designated service location.

4. Extensions:

The warranty period for the drive motor to be free of defects in materials and workmanship extended to five (5) years on the following models: SO218, SO318, SO328.

5. Exclusions and Limitations:

This warranty does not extend to parts, sometimes called "wear parts", which are generally expected to deteriorate and to require replacement as equipment is used, including as examples but not intended to be limited to o-rings, hoses, seals and drive belts. All such parts are sold

AS IS.

This warranty does not extend to parts, sometimes called "wear parts", which are generally expected to deteriorate and to require replacement as equipment is used, including as examples but not intended to be limited to o-rings, hoses, seals and drive belts. All such parts are sold.

THE REMEDIES SET FORTH IN THIS WARRANTY SHALL BE THE SOLE LIABILITY STOELTING AND THE EXCLUSIVE REMEDY OF BUYER WITH RESPECT TO EQUIPMENT SUPPLIED BY STOELTING; AND IN NO EVENT SHALL STOELTING BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER FOR BREACH OF WARRANTY OR OTHER CONTRACT BREACH, NEGLIGENCE OR OTHER TORT, OR ON ANY STRICT LIABILITY THEORY.

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